EPA-600/2-76-068b
March 1976

Environmental Protection Technology Series

AD A032564

DDC
RECEIVED
NOV 22 1976

RESEARCH REPORTING SERIES

Research reports of the Office of Research and Development, U.S. Environmental Protection Agency, have been grouped into five series. These five broad categories were established to facilitate further development and application of environmental technology. Elimination of traditional grouping was consciously planned to foster technology transfer and a maximum interface in related fields. The five series are:

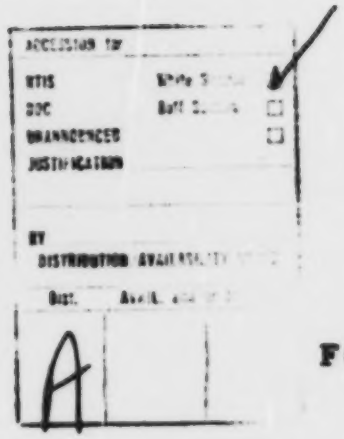
1. Environmental Health Effects Research
2. Environmental Protection Technology
3. Ecological Research
4. Environmental Monitoring
5. Socioeconomic Environmental Studies

This report has been assigned to the ENVIRONMENTAL PROTECTION TECHNOLOGY series. This series describes research performed to develop and demonstrate instrumentation, equipment, and methodology to repair or prevent environmental degradation from point and non-point sources of pollution. This work provides the new or improved technology required for the control and treatment of pollution sources to meet environmental quality standards.

EPA REVIEW NOTICE

This report has been reviewed by the U.S. Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policy of the Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.



EPA-600/2-76-068b
March 1976

DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION

VOLUME II--BIBLIOGRAPHY

by

Eldon A. Byrd, O. M. Meredith, and Sherman Gee

U.S. Naval Surface Weapons Center
White Oak
Silver Spring, Maryland 20910

EPA Interagency Agreement IAG-133-D
ROAP No. 21ADM-018
Program Element No. 1AB012

EPA Project Officer: James H. Abbott

Industrial Environmental Research Laboratory
Office of Energy, Minerals, and Industry
Research Triangle Park, NC 27711

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Washington, DC 20460

DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION

Volume 2

By

E. A. Byrd and O. M. Meridith

ABSTRACT

This bibliography signifies an extensive search of the Defense Documentation Center (DDC) computerized data bank in Alexandria, Virginia, as well as DoD facility libraries and other sources.

This report is submitted in partial fulfillment of Interagency Agreement No 133-D by the Naval Surface Weapons Center, White Oak under the sponsorship of EPA. Work was completed as of April 1976.

TABLE OF CONTENTS

		Page
A.	Introduction	1
B.	Bibliographies	1
	1. Air Pollution	3
	a. Health Effects	3
	b. Pesticides	39
	c. Chemistry Physics	45
	(1) Air Quality	45
	(2) Emission Measurements	57
	d. Quality Assurance and Monitoring	87
	e. Meteorology	97
	2. Control	115
	a. Instrumentation and Measurement	115
	(1) Fine Particulates	115
	(2) Other	133
	b. Chemical Processes	141
	c. Filters	157
	d. Sampling	189
	3. Air-Solid Waste Pollution	227
	4. Intermedia Transport	235
	5. Water-Air Pollution	239
	a. General	239
	b. By Specific Pollutant	243

INTRODUCTION

This bibliography represents references identified from many sources. The primary source of the documents listed was the DDC in Alexandria, Virginia. Details of how this computer based survey was conducted are contained in Volume 1 of this report.

Over 21,000 citations were reviewed. About 10,000 were redundant, leaving 11,000 unique citations. Only about 1 in 10 was really relevant to EPA Industrial Environmental Research Laboratory (IERL) interest in air pollution. Thus, about 1100 documents available for DDC are of some value to NERC; however, approximately 600 most valuable were selected for inclusion in this bibliography. Additionally, several hundred are cited without abstracts. These non-abstracted documents represent DoD facility library searches and other bibliographic sources. Over a hundred of these documents were actually sent to NERC-RTP in June of 1975 along with a routing slip so that all interested researchers could have access to documents of interest to them. A bibliography of 228 reports was also included in "Defense Technology for Environmental Protection," NOLTR 74-174. Several of those citations are included in this bibliography for convenience.

"Preliminary Air Pollution Engineering Surveys" of virtually all US Army installations have been conducted although only one or two are cited herein. However, dozens are available from DDC.

In addition, to the items mentioned above, approximately 1500 citations, mostly with abstracts have been forwarded to the EPA project officer (Mr. J. Abbott) for distribution to individual researchers at the IERL. Included were bibliographies on Beryllium, Ordnance Disposal, Mercury, Asbestos, etc.

The following page displays the various parts of the abstracted citations.

AD-654 990 4/2 8/7 ← DDC Identification numbers

ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N ← Who issued the report
MEX

A STUDY OF ATMOSPHERIC DUST. ← (U) ← Title

MAR 67 191P HOIDALE,G. B. ISMITH,S. ← Date of Publication, number of pps, and author(s).
M. IBLANCO,A. J. IBARBER,T. L. I

PROJI DA-1-P-620901-A-199 ← Project Number
TASKI 1-P-620901-A-19905 ← Task Number
MONITORI ECOM 5047 ← Who monitored the project

UNCLASSIFIED REPORT

DESCRIPTORSI (•DUST, •AIR POLLUTION), (•AEROSOLS, NEW MEXICO), INFRARED SPECTRA, QUARTZ, KAOLINITE, GYPSUM, CARBONATE MINERALS, PARTICLES, SOILS, SALTS, CALCITE, METEOROLOGICAL PHENOMENA, METEOROLOGICAL CHARTS, AIR MASS ANALYSIS, MEASUREMENT (U) ← DOD Classification symbols
IDENTIFIERSI WHITE SANDS MISSILE RANGE (U)

THIS REPORT DISCUSSES THE TECHNIQUES USED IN AND THE RESULTS OF AN INVESTIGATION OF THE MINERAL CONSTITUENCY OF THE DUST COMPONENT OF THE ATMOSPHERIC AEROSOL OVER WHITE SANDS MISSILE RANGE, NEW MEXICO, CONDUCTED FROM NOVEMBER 1964 TO AUGUST 1965. THE EIGHTY-ONE ATMOSPHERIC DUST SAMPLES, TAKEN NEAR THE SURFACE DURING THIS PERIOD, WERE ANALYZED BY THE LIGHT MICROSCOPE TECHNIQUE OF DISPERSION STAINING AND BY INFRARED ABSORPTION SPECTROSCOPY. DISPERSION STAINING WAS USED TO DETERMINE THE CONCENTRATIONS OF QUARTZ, KAOLINITE, ILLITE, GYPSUM, AND THE CARBONATE FAMILY WHEN THE PARTICLE DIAMETERS WERE GREATER THAN FOUR MICRONS. CASES OF EXCEPTIONALLY HIGH CONCENTRATIONS OF GYPSUM, QUARTZ, AND KAOLINITE, THE MONTH-BY-MONTH VARIATION OF THE COMPOSITE CONCENTRATION, THE SEASONAL VARIATION OF THE GYPSUM CONCENTRATION, AND THE LOWEST SINGLE-SAMPLE COMPOSITE CONCENTRATION ARE DISCUSSED IN RELATION TO THE MINERAL CONTENT OF AREA SOILS AND METEOROLOGICAL CONDITIONS. COMMENTS ARE MADE RELATIVE TO THE POSSIBLE INFLUENCE OF EXTRATERRESTRIAL AND SEA-SALT PARTICLES ON THE OBSERVED CONCENTRATIONS. BY EXTENDING INFRARED ABSORPTION SPECTRA TO 40 MICRONS WAVELENGTH, IT HAS BEEN POSSIBLE TO IDENTIFY THE MINERALS GYPSUM, HIBABILITE, QUARTZ, KAOLINITE, ILLITE, CALCITE, AND DOLOMITE IN MICROGRAM SAMPLES OF ATMOSPHERIC DUST, ALTHOUGH ANY PARTICULAR SAMPLE MIGHT REVEAL ONLY A FEW OF THESE CONSTITUENTS. (AUTHOR) ← Abstract

AIR POLLUTION
Health Effects

AD-694 220 6/10
CINCINNATI UNIV OHIO DEPT OF ENVIRONMENTAL HEALTH

EXPOSURES TO BERYLLIUM IN A BERYLLIUM ALLOYING PLANT. (U)

67 11P CHOLAK,JACOB (SCHAFER,
LAWRENCE (YEAGER,DAVID I
CONTRACT: AF 33(657)-11036
PROJ: AF-6302
TASK: 630206
MONITOR: AMRL TR-67-69

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL HYGIENE ASSOCIATION JNL., V28 P399-407 SEP-OCT 67.

DESCRIPTORS: (*BERYLLIUM, EXPOSURE(PHYSIOLOGY)), POWDER METALS, INDUSTRIAL MEDICINE, HAZARDS, DISEASES, THRESHOLDS(PHYSIOLOGY), AIR POLLUTION, MONITORS (U)

CONTINUOUS MONITORING OF THE AIR AT SEVEN REPRESENTATIVE WORK LOCATIONS IN A BERYLLIUM ALLOYING PLANT DURING A FIVE-DAY PERIOD IN 1960 SHOWED THAT CONCENTRATIONS OF BERYLLIUM IN THE AIR AT ALL-LOCATIONS GREATLY EXCEEDED THE TLV OF 2 MICROGRAMS PER CUBIC METER OF AIR. A SIMILAR SURVEY DURING 1966 ALSO YIELDED CONCENTRATIONS WHICH EXCEEDED THE TLV FOR THE GREATER PORTION OF THE TIME. STUDIES OF THE RANGE OF SIZES OF PARTICLES PRESENT IN THE AIR INDICATED THAT THE PARTICLES WERE PRINCIPALLY BELOW 2 MICRONS IN SIZE AND THAT THE PARTICLES IN THE SO-CALLED 'RESPIRABLE' RANGE OF SIZES CONTAINED APPROXIMATELY 30% OF THE TOTAL BERYLLIUM PRESENT IN THE AIR. CONCENTRATIONS OF BERYLLIUM FLUCTUATED WIDELY FROM HOUR AT EACH LOCATION. AVERAGE CONCENTRATIONS OBSERVED DURING THE TWO SURVEYS ARE CONSIDERED REPRESENTATIVE OF CONCENTRATIONS WHICH HAVE EXISTED IN THIS PLANT DURING THE LAST 13 YEARS OF OPERATION. NO CASES OF CHRONIC BERYLLIOSIS DISEASE HAVE BEEN REPORTED AMONG WORKMEN WHO HAVE BEEN UNDER CLOSE MEDICAL SURVEILLANCE DURING THIS PERIOD. (AUTHOR) (U)

AD-759 936 6/20 6/1
MONSANTO RESEARCH CORP DAYTON OHIO DAYTON LAB

RESEARCH PROGRAM ON BERYLLIUM OXIDE ANALYSIS AND TOXICITY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 71-JUN 72.
SEP 72 99P SCRIBNER,WILLIAM G. I
CYRTHICE4,THOMAS (FRANE,GEORGE M. (FORD,
RODDEY E. I
REPT. NO. MRC-DA-340
CONTRACT: F33615-71-C-1799
PROJ: AF-6302
TASK: 630203
MONITOR: AMRL TR-72-72

UNCLASSIFIED REPORT

DESCRIPTORS: (*TOXICITY, BERYLLIUM OXIDES), (*BERYLLIUM OXIDES, BLOOD ANALYSIS), TISSUE(BIOLOGY), CHEMICAL ANALYSIS, GAS CHROMATOGRAPHY, CANCER, AIR POLLUTION, EXHAUST GASES, PUBLIC HEALTH, INDUSTRIAL MEDICINE, BLOOD CHEMISTRY, CHELATE COMPOUNDS, HALOGENATED HYDROCARBONS (U)
IDENTIFIERS: CARCINOGENS (U)

THE CARCINOGENIC ACTIVITY OF BEO HAS BEEN SHOWN TO BE A FUNCTION OF THE TEMPERATURE TO WHICH THE BERYLLIUM HAS BEEN EXPOSED. EXAMINATION OF THE TOXICOLOGICAL PROPERTIES OF VARIOUS ROCKET EXHAUST PRODUCTS INDICATE THAT SOME PRODUCTS RESEMBLE HIGH-FIRED BEO IN THEIR LACK OF CARCINOGENIC ACTIVITY, WHILE OTHERS CONTAIN CONSIDERABLE QUANTITIES OF WATER SOLUBLE BERYLLIUM AND VARY IN TOXICITY. IN ANALYZING BLOOD SAMPLES IT IS NECESSARY TO OBTAIN THE TOTAL BE CONCENTRATION ALTHOUGH AS MENTIONED SOME FORMS ARE NOT AS REACTIVE AS OTHERS. THUS THE RESEARCH INVOLVED DEVISING REACTION CONDITIONS FOR THE CONVERSION OF LOW-FIRED BEO AND HIGH-FIRED BEO SUCH THAT THE REACTION MIXTURE WAS IN A FORM SUITABLE FOR THE GAS CHROMATOGRAPHIC MEASUREMENT OF BERYLLIUM. ALSO DISCUSSED IS THE APPLICABILITY OF THE TECHNIQUE FOR THE CONVERSION OF THE OXIDES IN BLOOD AND TISSUE MATRICES. (U)

AD-781 672 6/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

USING THE METHOD OF LIGHT SCATTERING IN STUDYING BIOLOGICAL AEROSOL. (U)

JUN 74 9P FEDYAEV,S. F. (BELYAKOV,V. A.)
REPT. NO. FTD-HT-23-1698-74
PROJ: FTD-T74-09-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO (USSR) N11 P699-701 NOV 71. BY DEAN F. W. KOOLBECK.

DESCRIPTORS: *BIOLOGICAL AEROSOLS, *VACCINES, *LIGHT SCATTERING, PARTICLE SIZE, CONCENTRATION(COMPOSITION), USSR, TRANSLATIONS (U)

THE PHOTOELECTRONIC METHOD FOR STUDYING PARTICLES OF POLYDISPERSED BIOLOGICAL AEROSOL VACCINES IN A FLOW OF AIR IS THE ONLY SUFFICIENTLY RELIABLE METHOD FOR STUDYING THE SPECTRUM OF AEROSOL PARTICLE SIZES, PERMITTING ANALYSIS OF THE NUMBER AND SIZE OF PARTICLES PER UNIT VOLUME, AND ALLOWING OBSERVATION OF THE KINETICS OF THE CHANGES IN PARTICLE CONCENTRATION IN THE COURSE OF THE EXPERIMENT. (U)

AD-899 561L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

AEROSOLS DISSEMINATED IN A FOG CHAMBER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 75P MORRISON,JOHN H.)
REPT. NO. DTC-FR-71-137, DTC-TEST-8-137
PROJ: RDT/E-1-X-665709-DL-11, USATECOM-5-CO-973-933-002

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY(TEST AND EVALUATION) APR 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DISTRIBUTION), (*CLOUD CHAMBERS, BACTERIAL AEROSOLS), FOG, BACILLUS SUBTILIS, FLUORESCENCE, PHYSICAL PROPERTIES, SAMPLING, NUCLEATION, SAMPLERS, DROPS, PARTICLE SIZE, DISTRIBUTION, RESPIRATION, LUNG, INFECTIONS, RECOVERY, BIOASSAY, VISIBILITY, CONCENTRATION(CHEMISTRY), POWDERS, PARTICLES, LIQUIDS, EFFECTIVENESS, DEGRADATION (U)
IDENTIFIERS: AEROSOL PARAMETERS, COASTAL FOGS, DECAY RATE, FLUORESCENT PARTICLES, INLAND FOGS, SLURRY AGENTS (U)

THE EFFECT OF FOG ON AEROSOLS IN A 600,000 LITER CHAMBER WAS STUDIED. A LIQUID SLURRY OF 'BACILLUS SUBTILIS' (BG) AND FLUORESCENT PARTICLES (FP) WERE DISSEMINATED IN SEPARATE TRIALS INTO ARTIFICIALLY CREATED FOGS SIMULATING EITHER ADVECTION OR RADIATION FOGS. IN BOTH TYPES OF FOG, THE BG REMAINED IN LARGE DROPLETS WHICH SETTLED MUCH MORE QUICKLY THAN IN THE NONFOG CONTROL CONDITION. A SIGNIFICANT PORTION OF THE FP WAS SCAVENGED BY BOTH TYPES OF FOG. THE DEGREE OF SCAVENGING WAS GREATER THAN EXPECTED BY COLLISION PROCESS THEORY. THE SCAVENGING INCREASED THE EFFECTIVE SIZE OF THE FP. IT WAS CONCLUDED THAT AEROSOLIZATION OF EITHER A LIQUID OR A DRY MATERIAL IN A CHAMBER-FOG ENVIRONMENT GREATLY REDUCES THE AMOUNT OF MATERIAL WHICH WOULD PENETRATE TO THE HUMAN LUNG IF INHALED, THE REDUCTION BEING GREATER FOR LIQUID AEROSOLS. AEROSOLS WERE STUDIED OVER AN AGE OF 28 MINUTES. MICROPHYSICAL PARAMETERS OF THE FOG WHICH WERE STUDIED WERE VISIBILITY, DROP CONCENTRATION, LIQUID WATER CONTENT, AND DROPLET DIAMETER. (AUTHOR) (U)

AD-673 121 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY, PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY. (U)

MAY 68 60P HARSTAD,J. BRUCE (FILLER, MELVIN C.)
REPT. NO. SMUFD MISC PUB-29
PROJ: DA-1O622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS FILTERS, PERFORMANCE(ENGINEERING)), AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS SUBTILIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES, PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: *AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (I) ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (II) COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM THESE FILTER PAPERS, AND (III) HIGH-EFFICIENCY FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES RANGING FROM 1.1 TO 150 FEET PER MINUTE (FPM) WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS GENERATED BY THE WHITBY SONIC JET IONIZER. (U)
(AUTHOR)

AD-911 269L 13/1 13/11
UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT

LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY PARTICULATE AIR FILTER BANKS. (U)

DEC 70 15P DEMONBRUN,J. R. (CHOAT, E. E.)
REPT. NO. Y-JA-33-REV-2
CONTRACT: W-7405-ENG-26
MONITOR: GIDEP 325.16.00.00-CN-01

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 JUN 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO OFFICER-IN-CHARGE (CODE 862), FLEET MISSILE SYSTEMS ANALYSIS AND EVALUATION GROUP ANNEX, ATTN: GIDEP ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-REV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING (7TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: (*GAS FILTERS, MAINTENANCE), (*AIR FILTERS, MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED ATMOSPHERES, LEAKAGE(FLUID), VISUAL INSPECTION, INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON, BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE. LIKEWISE, THESE SAME CONTAMINANTS, USED IN A CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE SOPHISTICATED REQUIREMENTS, CAREFUL SERVICING OF HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING, AND TESTING FILTER BANKS.

AD-920 929L 6/6 13/2 15/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

A FEW PROBLEMS CONCERNING AIR DISINFECTION. (U)

JUL 73 9P BARTLEMA,H. C. I

REPT. NO. FSTC-HT-23-1801-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM NEDERLANDS MILITAIR GENEESKUNDIG TIJDSCHRIFT V7 NR/6 1954.

DESCRIPTORS: (*GERMICIDES, AEROSOLS); (*DISINFECTION, AIR POLLUTION); DECONTAMINATION, BIOLOGICAL WARFARE AGENTS, MICROORGANISMS, TOXIC HAZARDS, FOOD, ANIMALS, DAMAGE ASSESSMENT, PATHOGENIC MICROORGANISMS, PHENOLS, HYPOCHLORITES, SODIUM COMPOUNDS, RESORCINOL, PROPYLENE GLYCOL, VAPORS, VAPORIZATION, GLYCOLS, SPRAYS, ULTRAVIOLET RADIATION, HISTORY, NETHERLANDS, TRANSLATIONS (U)
IDENTIFIERS: GLYCOL/TRIETHYLENE (U)

THE GOAL OF REDUCING THE NUMBER OF MICROORGANISMS PRESENT IN THE AIR OF AN ENCLOSED SPACE CAN TAKE TWO FORMS: (1) PREVENT THE SPREADING OF THESE GERMS IN THE AIR AND THUS DIRECT MEASURES AT THE DIFFERENT RESERVOIRS, PERSONS AS WELL AS OBJECTS ('FOMITES'); (2) REMOVE OR DESTROY GERMS ALREADY SUSPENDED IN THE AIR, IN WHICH CASE AIR DISINFECTING MEASURES COME TO THE FORE. A COMBINATION OF THESE TWO PRINCIPLES IS ALSO QUITE FEASIBLE AND UNDER MOST CIRCUMSTANCES MAY BE THE MOST EFFECTIVE. THESE ARE THE PRINCIPLES DISCUSSED IN THE REPORT. (U)

AD-885 903 13/2 6/6
INTER-COUNCIL WORKING PARTY

POLLUTION RESEARCH AND THE RESEARCH COUNCILS. (U)

MAR 71 31P

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, GREAT BRITAIN); (*WATER POLLUTION, GREAT BRITAIN); HAZARDS, ENVIRONMENT, RESEARCH MANAGEMENT, SCIENTIFIC RESEARCH, CLASSIFICATION, TABLES(DATA), COLLECTING METHODS, WASTES(INDUSTRIAL), WASTES(SANITARY ENGINEERING), HUMANS, MARINE BIOLOGY, TOXICITY, RADIOACTIVE CONTAMINATION, HERBICIDES, PUBLIC HEALTH, INDUSTRIAL PLANTS, NOISE, PESTICIDES (U)
IDENTIFIERS: HEAVY METALS, *POLLUTION RESEARCH (U)

THE RESEARCH COUNCILS HAVE BEEN PROMOTING RESEARCH ON POLLUTION FOR A NUMBER OF YEARS, AND ARE CONTINUOUSLY RE-SHAPING THEIR RESEARCH PROGRAMMES TO MEET NEW AND CHANGING DEMANDS. THE STUDY ON WHICH THIS REPORT IS BASED WAS UNDERTAKEN TO TAKE STOCK OF THE WHOLE RANGE OF THIS RESEARCH, AND TO IDENTIFY WAYS IN WHICH THE COMBINED RESOURCES OF ALL THE COUNCILS COULD BE MOBILISED TO COPE WITH THE PROBLEMS WHICH LIE AHEAD. (U)

AD-874 400I 6/15 6/13
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C

RESEARCH ON MASS VACCINATION WITH AEROSOLS (RECHERECHES SUR LA VACCINATION DE MASSE PAR AEROSOLS). (U)

JUN 70 19P FOUTANGES,R. I
REPT. NO. FSTC-HT-23-720-70
PROJ: FSTC-09231002301

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, WASHINGTON, D. C. 20315.
SUPPLEMENTARY NOTE: TRANS. OF SOCIETE MEDICO-CHIRURGICALE DES HOPITAUX ET FORMATIONS SANITAIRES DES ARMEES (FRANCE) N6 P561-568 JUN 69. BY ROBERT L. ELLIS.

DESCRIPTORS: (*VACCINES, *BACTERIAL AEROSOLS), PREPARATION, TOXINS AND ANTITOXINS, CORYNEBACTERIUM DIPHTHERIAE, CLOSTRIDIUM TETANI, IMMUNITY, BACILLUS, BACTERIA, AEROSOLS, PRODUCTION, DEHYDRATION, DOSAGE, EFFECTIVENESS, MONKEYS, SEDIMENTATION, FRANCE (U)
IDENTIFIERS: TRANSLATIONS (U)

THE USE OF DIPHTHERIC AND TETANIC ANATOXINS AS WELL AS CALMETTE-GUERIN BACILLUS (BCG) AS AGENTS IN THE PERFECTION OF IMMUNIZATION BY AEROSOL WAS INVESTIGATED. FIRSTLY THE PRODUCTION OF THE AEROSOL, THE SEDIMENTATION, GRANULOMETRY AND PERCENTAGE OF SURVIVING BACTERIA AFTER DEHYDRATION WAS STUDIED. AN APPARATUS FOR DEHYDRATION IN A VACUUM WAS PERFECTED. SECONDLY TESTS WERE CARRIED OUT ON CYNOCEPHALUS MONKEYS IN CLOSELY CONTROLLED ENVIRONMENTS TO DETERMINE IMMUNIZATION DOSES. (AUTHOR) (U)

AD-920 335L 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

GERMICIDAL ACTION OF AIR POLLUTANTS. (U)

NOV 73 11P NIK,G. OF I
REPT. NO. FSTC-HT-23-0608-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF TOPGEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK (NETHERLANDS) V 27 N6 P291-295 1972.

DESCRIPTORS: (*AIR POLLUTION, *GERMICIDES), (*BACTERIAL AEROSOLS, VIABILITY), (*ESCHERICHIA COLI, VIABILITY), AIR, AEROSOLS, BACTERIA, POLLUTANTS, OZONE, HYDROCARBONS, ALKENES, COMPLEX COMPOUNDS, URBAN AREAS, TEST METHODS, SIMULATION, NETHERLANDS, TRANSLATIONS (U)
IDENTIFIERS: OLEFINS, DELFT(NETHERLANDS), VLAARDINGEN(NETHERLANDS), SOESTERBERG(NETHERLANDS), HELLEVOETSLUIS(NETHERLANDS), MICROTHREAD TECHNIQUE (U)

USING MAY AND DRUETT'S MICROTHREAD TECHNIQUE, THE VIABILITY OF ESCHERICHIA COLI 162 WAS MEASURED IN SEVERAL PLACES IN THE NETHERLANDS. GERMICIDAL EFFECTS THUS NOTED SHOULD PROBABLY BE ATTRIBUTED TO OZONE-OLEFIN COMPLEXES. (AUTHOR) (U)

AD-779 526 6/9
NAVAL GRADUATE DENTAL SCHOOL BETHESDA MD

OZONE AND GLYCOL VAPOR DECONTAMINATION OF AIR IN A CLOSED ROOM. (U)

JUL 73 19P PELLEU,G. B. ; JR.;BERRY, R. F. ;HOLLEMAN,N. G. ;

REPT. NO. NGDS-TR-029
PROJ: MR041.20
TASK: MR041.20.02

UNCLASSIFIED REPORT

DESCRIPTORS: *DECONTAMINATION MATERIALS, *BACTERIAL AEROSOLS, *OZONE, *GLYCOLS, BACTERIA, STREPTOCOCCUS, STAPHYLOCOCCUS, BACILLUS SUBTILIS, DECONTAMINATION EQUIPMENT, SPORES, GENERATORS (U)
IDENTIFIERS: INDOOR AIR POLLUTION, STREPTOCOCCUS MITIS, STAPHYLOCOCCUS EPIDERMIDIS (U)

A DIELECTRIC TYPE GENERATOR (OZONE/AIR) AND TWO COMMERCIAL GLYCOL-TYPE SPRAY DECONTAMINANTS (OZONE AND AIR-FRESH) WERE EVALUATED IN A CLOSED ROOM FOR EFFECTIVENESS IN REDUCING THE NUMBER OF AIRBORNE BACTERIA. OZONE IN CONCENTRATIONS OF 0.05, 0.1 (THE THRESHOLD LIMIT VALUE FOR HUMANS), AND 1.0 P.P.M., AND THE TWO COMMERCIAL GLYCOL AEROSOLS, WERE TESTED IN A 700-FT. CAPACITY CLOSED ROOM FOR THEIR EFFECTS ON REDUCTIONS IN THE NUMBER OF AIRBORNE STREPTOCOCCUS MITIS, STAPHYLOCOCCUS EPIDERMIDIS, AND BACILLUS SUBTILIS SPORES. AT OZONE CONCENTRATIONS OF 1.0 P.P.M., MORE THAN 90% OF THE STREPTOCOCCI AND STAPHYLOCOCCI WERE REMOVED FROM THE AIR WITHIN FIVE MINUTES. NO AIRBORNE REDUCTIONS WERE NOTED AT THE TLV (THRESHOLD LIMIT VALUE) CONCENTRATION OF OZONE. THE EFFECT OF THE GLYCOL AEROSOLS ON 60-MINUTE REDUCTIONS OF AIRBORNE BACTERIA WAS NO DIFFERENT FROM THAT OF THE WATER AEROSOL CONTROLS. (AUTHOR) (U)

AD-893 024 15/2 6/13
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY (ENGLAND)

THE RELATIONSHIP BETWEEN BACTERIAL METABOLIC ACTIVITY AND SURVIVAL IN AEROSOLS. (U)

FEB 72 15P HAMBLETON,P. ;STRANGE,R. E. ;DENBOUGH,J. E. ;

REPT. NO. MRE-67

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*BACTERIAL AEROSOLS, VIABILITY), BACTERIA, SURVIVAL(PERSONNEL), METABOLISM, GROWTH(PHYSIOLOGY), ESCHERICHIA COLI, CULTURE MEDIA, HUMIDITY, PREPARATION, BACILLUS SUBTILIS, TRACER STUDIES, OXYGEN CONSUMPTION, STARVATION, GREAT BRITAIN (U)
IDENTIFIERS: BATCH CULTURES (U)

THE INFLUENCE OF MANY ENVIRONMENTAL FACTORS ON THE SURVIVAL OF AIRBORNE BACTERIA HAS BEEN EXAMINED (ANDERSON AND COX, 1967; DENBOUGH, 1967, 1969; COX, 1966, 1968; WEBB, 1965). THE RELATIVE HUMIDITY (RH) OF THE ATMOSPHERIC ENVIRONMENT WAS SHOWN TO BE AN IMPORTANT FACTOR BUT OTHER FACTORS INCLUDING OXYGEN TOXICITY, TEMPERATURE AND COMPOSITION OF THE COLLECTING FLUID ALSO AFFECT BACTERIAL SURVIVAL. THE EFFECT OF THE ATMOSPHERIC ENVIRONMENT HAS BEEN WIDELY STUDIED BUT THE RELATIONSHIP BETWEEN THE PHYSIOLOGICAL STATE AND/OR CHEMICAL COMPOSITION OF BACTERIA AND BACTERIAL SURVIVAL IN AEROSOLS HAS RECEIVED LESS ATTENTION. IN THIS REPORT THE RELATIONSHIP BETWEEN METABOLIC ACTIVITY AND SURVIVAL OF BACTERIA IN AEROSOLS IS EXAMINED ON A QUANTITATIVE BASIS OVER A WIDE RH RANGE. (U)

AD-771 660 3/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

TECHNOLOGY OF AEROGENIC IMMUNIZATION AGAINST SWINE ERYSIPELAS UNDER CONDITIONS OF ACTUAL PRACTICE. (U)

NOV 73 19P MOHLMANN,H. (REESE,MARGOT ; STOHR,P. (SCHULTZ,V.)
REPT. NO. FTD-HC-23-278-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONATSHEFTE FUER VETERINARMEDIZIN (EAST GERMANY) V26 N21 P829-832, NOV 70.

DESCRIPTORS: *BIOLOGICAL AEROSOLS, *IMMUNIZATION, EAST GERMANY, SWINE, INFECTIOUS DISEASES, VETERINARY MEDICINE, FACILITIES, TRANSLATIONS (U)
IDENTIFIERS: *ERYSIPELAS (U)

LARGE ANIMAL HUSBANDRY CENTERS ARE ECONOMICAL ONLY WITH HIGH CONCENTRATION OF THE HERDS. THE FACILITIES FOR ANIMAL RAISING MUST BE SO PROTECTED THAT INFECTIOUS DISEASES DO NOT LEAD TO AN ENDANGERMENT OF THE HERD. IN THIS REGARD, STRINGENT ISOLATION AND PROPHYLACTIC VACCINATIONS ARE OF IMPORTANCE. THE PREVENTION OF SWINE ERYSIPELAS INFECTION IN LARGE PIG-FATTENING FACILITIES CANNOT BE SOLVED THROUGH HYGIENIC MEASURES ALONE. THE ANIMALS MUST BE KEPT UNDER VACCINE PROTECTION AGAINST SWINE ERYSIPELAS, SINCE, IN SPITE OF ALL THERAPEUTIC MEASURES, SPONTANEOUS OUTBREAKS OF SWINE ERYSIPELAS AMONG NON-IMMUNIZED PIGS CAN LEAD TO A CONSIDERABLE LOSS OF ANIMALS. CONSEQUENTLY A METHOD MUST BE SOUGHT WHICH WILL IMMUNIZE LARGE NUMBERS OF HOGS WITHOUT SYRINGE AND CANNULA. (U)

AD-827 093 6/12 6/13
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL SAFETY EVALUATION OF AN INDUSTRIAL REFUSE INCINERATOR. (U)

DEC 67 15P BARRETTO,MANUEL S. ;
GREHILLION,GARDNER G. ;
REPT. NO. SMUFD-TECHNICAL MANUSCRIPT-918
PROJ: DA-1B622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: (*BACTERIAL AEROSOLS, STERILIZATION), (*INCINERATORS, PERFORMANCE(ENGINEERING)), BIOLOGICAL LABORATORIES, SAFETY, BACILLUS SUBTILIS, SPORES, TEMPERATURE, EFFECTIVENESS, VIABILITY (U)

AN INDUSTRIAL REFUSE INCINERATOR WAS TESTED TO DETERMINE MINIMUM OPERATING TEMPERATURES REQUIRED TO PREVENT RELEASE OF VIABLE MICROORGANISMS TO THE ATMOSPHERE. A LIQUID SUSPENSION OF BACILLUS SUBTILIS VAR. NIGER SPORES WAS DISSEMINATED INTO THE FIREBOX AS AN AEROSOL, AND DRY SPORES MIXED WITH ANIMAL BEDDING WERE DUMPED INTO THE FIREBOX. THE MINIMUM REQUIREMENT FOR WET SPORES WAS 675F FOR THE FIREBOX AIR TEMPERATURE AND 385F FOR THE FIREBRICK REFRACTORY LINING. WHEN DRY SPORES WERE USED, THESE TEMPERATURES WERE 700F AND 385F, RESPECTIVELY. (AUTHOR) (U)

AD-827 995 6/13 15/2
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL EVALUATION OF A LARGE-VOLUME AIR INCINERATOR. (U)

DEC 67 19P BARREIRO,MANUEL S. (TAYLOR, LARRY A. (SPIDERS,REGINALD W. (
REPT. NO. SMUFD-TECHNICAL MANUSCRIPT-925
PROJ: DA-1R622901A072

UNCLASSIFIED REPORT

DESCRIPTORS: (*INCINERATORS, STERILIZATION), (*BACTERIAL AEROSOLS, STERILIZATION), BACILLUS SUBTILIS, SERRATIA MARCESCENS, TEMPERATURE, SPORES, BIOLOGICAL LABORATORIES, COSTS (U)

TWO SEMI-PORTABLE METAL AIR INCINERATORS, EACH WITH A CAPACITY OF 1,000 TO 2,200 STANDARD CUBIC FEET PER MINUTE OF AIR, WERE CONSTRUCTED TO STERILIZE INFECTIOUS AEROSOLS CREATED FOR INVESTIGATIVE WORK IN A MICROBIOLOGICAL LABORATORY. EACH UNIT HAS ABOUT THE SAME AIR HANDLING CAPACITY AS A CONVENTIONAL AIR INCINERATOR WITH A BRICK STACK AND COSTS ABOUT ONE-THIRD AS MUCH. THE UNITS ARE UNIQUE IN THAT THE BURNER HOUSING AND COMBUSTION CHAMBER ARE AIRTIGHT AND UTILIZE A PORTION OF THE CONTAMINATED AIR STREAM TO SUPPORT COMBUSTION OF FUEL OIL. OPERATION IS CONTINUOUS. AEROSOLS OF LIQUID AND DRY SUSPENSIONS OF BACILLUS SUBTILIS VAR. NIGER SPORES AND DRY VEGETATIVE CELLS OF SERRATIA MARCESCENS WERE DISSEMINATED INTO THE TWO INCINERATORS TO DETERMINE THE CONDITIONS REQUIRED TO STERILIZE CONTAMINATED AIR. WITH THE LATTER ORGANISMS (CONCENTRATION 3.03 X 10 TO THE 7TH POWER ORGANISMS/CU FT OF AIR), 525 F, MEASURED AT THE FIREBOX IN FRONT OF THE HEAT EXCHANGER, WAS SUFFICIENT FOR STERILIZATION. TO STERILIZE WET SPORES OF 1.79 X 10? AND 1.79 X 10 TO THE 9TH POWER B. SUBTILIS PER CU FT, THE TEMPERATURE RANGED FROM 525 TO 675 F AND 625 TO 700 F. AIR STERILIZATION TEMPERATURE VARIED WITH EACH INCINERATOR. THIS WAS BECAUSE OF INNATE DIFFERENCES OF FABRICATION, SPORE CONCENTRATION, AND USE OF ONE OR TWO BURNERS. WITH DRY B. SUBTILIS SPORES (1.86 X 10 TO THE 8TH POWER/CU FT), 700 F WAS REQUIRED FOR STERILIZATION. NO DIFFERENCE WAS NOTED IN THE STERILIZATION TEMPERATURE FOR BOTH INCINERATORS WITH DRY SPORES. (AUTHOR) (U)

AD-837 011 6/5 6/13 2/5
ARMY BIOLOGICAL LABS FREDERICK MD

SPECIAL CONDITIONS FOR THE PENETRATION OF INFECTIVE PATHOGENS THROUGH THE INTACT PULMONARY SURFACE. (U)

JUL 68 19P BUCHNER,H. (
REPT. NO. TRANS-996

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ARCHIV FUER HYGIENE UND BAKTERIOLOGIE (GERMANY) V8 P217-245 1888.

DESCRIPTORS: (*LUNG, INFECTIONS), (*BACTERIAL AEROSOLS, INFECTIOUS DISEASES), PENETRATION, BACILLUS ANTHRACIS, SPORES, RESPIRATION, PATHOLOGY, SEPTICEMIA, VIBRIO, STAPHYLOCOCCUS AUREUS, MYCOBACTERIUM TUBERCULOSIS, ACTINOBACILLUS, STREPTOCOCCUS PYOGENES, RICKETTSIA (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PRECEDING EXPERIMENTS DEMONSTRATED THE PENETRATION OF INTACT SURFACES OF THE LUNG BY CERTAIN INFECTIVE PATHOGENS. A DETAILED DISCUSSION IS PRESENTED ON THE FOLLOWING QUESTIONS: HOW IS PERFORATION OF THE LUNG ACCOMPLISHED; WHICH CONDITIONS FAVOR IT AND WHICH CONDITIONS PREVENT IT; WHICH TYPES OF INFECTIVE PATHOGENS SUGGEST THE POSSIBILITY OF PENETRATION, AND WHICH EXCLUDE IT. (AUTHOR) (U)

AD-734 751 6/6 6/13
FORT DETRICK FREDERICK MD

EXPERIMENTAL TULAREMIA IN 'MACACA MULATTA': RELATIONSHIP OF AEROSOL PARTICLE SIZE TO THE INFECTIVITY OF AIRBORNE 'PASTEURELLA TULARENSIS'. (U)

AUG 71 7P DAY,WILLIAM C. ;BERENDT, RICHARD F. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN INFECTION AND IMMUNITY. V6 N1 P77-82 JAN 72.

DESCRIPTORS: (•PASTEURELLA TULARENSIS, DISEASES), (•BACTERIAL AEROSOLS, PASTEURELLA TULARENSIS), INFECTIOUS DISEASES, MONKEYS, EXPERIMENTAL DATA, PATHOLOGY, RESPIRATORY SYSTEM, MORTALITY RATES (U)
IDENTIFIERS: •TULAREMIA (U)

NINETY-SIX MACACA MULATTA WERE EXPOSED TO AEROSOL PARTICLES CONTAINING PASTEURELLA TULARENSIS. FOUR DIFFERENT AEROSOLS WERE EMPLOYED THAT CONTAINED PARTICLE SIZE DISTRIBUTIONS WITH MEDIAN DIAMETERS OF 2.1, 7.5, 12.5, OR 24.0 MICROMETERS. SIZE DISTRIBUTIONS WERE CALCULATED ONLY FOR THOSE PARTICLES OBSERVED BY PHASE MICROSCOPE TO CONTAIN ORGANISMS. ANIMALS EXPOSED TO PARTICLES WHOSE MEDIAN DIAMETERS WERE EITHER 2.1 OR 7.5 MICROMETERS WERE ALL INFECTED AND SHOWED EXTENSIVE INFECTION OF THE LOWER RESPIRATORY TRACT, EVIDENCED BY LARGE PATCHES OF CONSOLIDATION WITH MANY NECROTIC FOCI ON THE SURFACE. DEATH OCCURRED IN THESE ANIMALS 4 TO 8 DAYS AFTER EXPOSURE. MONKEYS EXPOSED TO 12.5- OR 24.0-MICROMETERS MEDIAN DIAMETER PARTICLES PRESENTED INVOLVEMENT OF THE CERVICAL AND MANDIBULAR LYMPH NODES, EVIDENCED BY SWELLING AND ABSCESS FORMATION. THIRTY-EIGHT OF THE 96 ANIMALS IN THIS GROUP WERE INFECTED. THOSE ANIMALS SUCCUMBING TO THE DISEASE DIED FROM 4 TO 21 DAYS AFTER EXPOSURE. THE RESPIRATORY LOSS VALUES INCREASED FROM 19 TO 9,997 CELLS AS THE MEDIAN DIAMETER WAS RAISED FROM 2.1 TO 24.0 MICROMETERS. (AUTHOR) (U)

AD-734 735 6/3 19/2
FORT DETRICK FREDERICK MD

AEROSOL INOCULATOR FOR EXPOSURE OF HUMAN VOLUNTEERS. (U)

JUL 71 6P GERONE,PETER J. ;COUCH, ROBERT B. ;KNIGHT,VERNON ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY. V22 N5 P899-903 NOV 71.

DESCRIPTORS: (•INJECTION(MEDICINE), VIRUSES), (•VIRUSES, •AEROSOLS), RESPIRATORY DISEASES, DOSAGE, HUMANS, EXPERIMENTAL DATA, INFECTIONS, LABORATORY EQUIPMENT (U)
IDENTIFIERS: •VIRAL AEROSOLS (U)

THE PERFORMANCE OF AN AEROSOL INOCULATOR FOR HUMAN VOLUNTEERS IS DESCRIBED IN TESTS THAT USE THE PR8 STRAIN OF TYPE A INFLUENZA VIRUS AND SODIUM FLUORESCEIN AS A PHYSICAL TRACER. VIRUS RECOVERY FROM THE AEROSOLS WAS APPROXIMATELY 1% AND WAS UNAFFECTED BY SUCH VARIABLES AS PROLONGED AEROSOLIZATION, TOTAL AIRFLOW, RELATIVE HUMIDITY, OR METHOD OF SAMPLING. THE RECOVERY OF SODIUM FLUORESCEIN FROM THE AEROSOL WAS APPROXIMATELY 12% AND WAS INFLUENCED BY TOTAL AIRFLOW RATES AND RELATIVE HUMIDITY. WITH THIS APPARATUS, IT SHOULD BE POSSIBLE TO DELIVER REASONABLY PREDICTABLE AND MEASURABLE DOSES OF RESPIRATORY VIRUSES TO HUMA SUBJECTS. THE DESIGN MAKES IT POSSIBLE TO DISMANTLE THE INOCULATOR INTO ITS COMPONENT PARTS TO FACILITATE PORTABILITY. (AUTHOR) (U)

AD-740 009 6/13
NAVAL BIOMEDICAL RESEARCH LAB OAKLAND CALIF

AEROSOL SURVIVAL OF 'PASTEURELLA TULARENSIS' AND THE INFLUENCE OF RELATIVE HUMIDITY. (U)

AUG 71 9P COX,C. S. GOLDBERG,L. J. ;

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V23 NI PI-3 JAN 72.

DESCRIPTORS: (*BACTERIAL AEROSOLS, HUMIDITY); (*PASTEURELLA TULARENSIS, BACTERIAL AEROSOLS); STABILITY, AIR, SURVIVAL(PERSONNEL), VACCINES, FREEZE DRYING (U)

THE AEROSOL SURVIVAL IN AIR WAS DETERMINED FOR PASTEURELLA TULARENSIS LIVE VACCINE STRAIN (LVS) AS A FUNCTION OF RELATIVE HUMIDITY (RH). THREE DIFFERENT PREPARATIONS OF BACTERIA WERE USED: (I) LIQUID SUSPENSION OF P. TULARENSIS LVS IN SPENT CULTURE MEDIUM; (II) POWDERS OF P. TULARENSIS LVS FREEZE-DRIED IN SPENT CULTURE FLUID; (III) P. TULARENSIS LVS FREEZE-DRIED IN SPENT CULTURE FLUID AND THEN RECONSTITUTED WITH DISTILLED WATER AND DISSEMINATED AS A LIQUID SUSPENSION. PREPARATION (I) GAVE GREATEST SURVIVAL AT HIGH RH AND LOWEST SURVIVAL AT INTERMEDIATE RH. PREPARATION (II), IN CONTRAST, GAVE GREATEST SURVIVAL AT LOW RH AND MINIMUM SURVIVAL AT 81% RH. PREPARATION (III) WAS THE SAME AS PREPARATION (I), I.E., THE PROCESS OF FREEZE-DRYING AND RECONSTITUTING WITH DISTILLED WATER BEFORE AEROSOL FORMATION HAD LITTLE OR NO EFFECT UPON AEROSOL SURVIVAL AS A FUNCTION OF RH. HENCE, CONTROL OF AEROSOL SURVIVAL APPEARS TO BE THROUGH THE WATER CONTENT OF P. TULARENSIS LVS AT THE MOMENT OF AEROSOL GENERATION RATHER THAN THE WATER CONTENT OF THE BACTERIA IN THE AEROSOL PHASE. (AUTHOR) (U)

AD-750 928
CINCINNATI UNIV OHIO KETTERING LAB

TOXIC HAZARDS OF BERYLLIUM PROPELLANT OPERATIONS: CRITIQUE OF CURRENT SAFETY PRACTICES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 1, 1 APR 63-30 JUNE 69,
SEP 69 96P CHOLAK,J. KEHOE,ROBERT A. SCHAFER,L. J.;
CONTRACT: AF33 657 11036
PROJ: 6302
TASK: 630206
MONITOR: AMRL TDR69 75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON TOXIC HAZARDS OF PROPELLANTS AND MATERIALS.

DESCRIPTORS: (*BERYLLIUM, HANDLING), (*HANDLING, BERYLLIUM), (*SAFETY, BERYLLIUM20, SOLID ROCKET PROPELLANTS, HAZARDS, TOXICITY, TOLERANCES (PHYSIOLOGY), PROTECTIVE CLOTHING, LAUNDRY OPERATIONS, WASTES (INDUSTRIAL), INDUSTRIAL MEDICINE, CONTAMINATION, DECONTAMINATION, RESPIRATORS (U)

CURRENT SAFETY PRACTICES IN THE HANDLING OF BERYLLIUM ENRICHED PROPELLANTS HAVE BEEN REVIEWED AND EVALUATED. THE REPORT INCLUDES A DISCUSSION OF PERTINENT FACTS RELATING TO BERYLLIOSIS AND THE CONSIDERATIONS WHICH LED TO THE PROMULGATION OF THE TOLERANCE LIMIT/. PARTICULAR EMPHASIS IS GIVEN TO POTENTIAL HAZARDS ARISING FROM PLANT OPERATIONS AND TEST FIRINGS. EXCEPT FOR CERTAIN MEASURES, INDUSTRIAL HYGIENE PRACTICES ARE DESCRIBED IN GENERAL TERMS. EXCEPTIONS, DEALING WITH LOCKER AND SHOWER ROOM FACILITIES, PROTECTIVE CLOTHING, LAUNDERING OF CLOTHING, USE OF PERSONAL RESPIRATORY DEVICES, AND DISPOSAL OF SOLID AND LIQUID WASTES ARE DISCUSSED IN SOME DETAIL. MEDICAL SURVEILLANCE PROGRAMS ARE OUTLINED IN FULL. (AUTHOR) (U)

AD-920 336L 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

GERMICIDAL ACTION OF AIR POLLUTANTS. (U)

NOV 73 11P MIK.&. DE I
REPT. NO. FSTC-HT-23-0606-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF TOEGEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK (NETHERLANDS) V 27 N4 P291-295 1972.

DESCRIPTORS: (*AIR POLLUTION, *GERMICIDES); (*BACTERIAL AEROSOLS, VIABILITY); (*ESCHERICHIA COLI, VIABILITY); AIR, AEROSOLS, BACTERIA, POLLUTANTS, OZONE, HYDROCARBONS, ALKENES, COMPLEX COMPOUNDS, URBAN AREAS, TEST METHODS, SIMULATION, NETHERLANDS, TRANSLATIONS (U)
IDENTIFIERS: OLEFINS, DELFT(NETHERLANDS), VLAARDINGEN(NLTHERLANDS), SOESTERBERG(NETHERLANDS), HELLEVOETSLUIS(NETHERLANDS), MICROTHREAD TECHNIQUE (U)

USING MAY AND DRUETT'S MICROTHREAD TECHNIQUE, THE VIABILITY OF ESCHERICHI: COLI 142 WAS MEASURED IN SEVERAL PLACES IN THE NETHERLANDS. GERMICIDAL EFFECTS THUS NOTED SHOULD PROBABLY BE ATTRIBUTED TO OZONE-OLEFIN COMPLEXES. (AUTHOR) (U)

AD-919 984L 6/16 6/5 13/2 6/4
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CHANGES IN SMALL AND LARGE ION CONCENTRATION AS A CONSEQUENCE OF NATURAL AND ARTIFICIAL HYDROIONIZATION IN THE ATMOSPHERE AND IN CLOSED SPACES. (U)

MAY 74 8P TUCZKA,S. I
REPT. NO. FTD-HC-23-1836-74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; FOREIGN INFO.; 25 JUN 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN TECHNOLOGY DIV., ATTN: TDBDA, WRIGHT-PATTERSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE: EDITED TRANS. OF ELEKTROAEROSOLE (1ST) (INTERNATIONAL CONGRESS ON AEROSOLS) (WEST GERMANY) N4 P199-198 1973.

DESCRIPTORS: (*AEROSOLS, *ELECTROSTATIC CHARGE); (*CHEMOTHERAPEUTIC AGENTS, *RESPIRATORY SYSTEM); (*GAS IONIZATION, ATMOSPHERES), CHEMOTHERAPY, INHALATION, PARTICLES, LUNG, BRONCHI, IONS, URBAN AREAS, AIR POLLUTION, DENSITY, STORMS, RAINFALL, PARTICLE SIZE, DISTRIBUTION, HEALTH, AIR POLLUTION, TRANSLATIONS, WEST GERMANY, HUMIDITY, ANIONS, AIR QUALITY (U)
IDENTIFIERS: *ELECTROAEROSOLS, HYDROIONIZATION (U)

HYGIENIC CHARACTERISTICS OF AIR PLAY A SIGNIFICANT ROLE AS HEALTH-PROMOTING AND CLIMATHERAPEUTIC FACTORS. VERY SMALL SOLID OR LIQUID AEROSOL PARTICLES CAPABLE OF FLOATING IN THE AIR ARE, ALONG WITH TRACE GASES AND AERIAL GERMS, ARE WELL-SUITED TO EVALUATE ENVIRONMENTAL CONDITIONS IN THIS RESPECT. HOWEVER, ONLY EXPERIMENTS ON CONDENSATION NUCLEI THAT CAN CARRY ELECTRICAL CHARGE AND CAN BE THEREFORE CALLED POSITIVE OR NEGATIVE AERIAL IONS ARE WITHIN THE SCOPE OF THIS ARTICLE, WHICH DEALS WITH NATURAL BIOLOGICALLY ACTIVE ELECTROAEROSOLS THAT AFFECT HUMANS IN CONTACT WITH THE AMBIENT AIR DAILY. THE BIOLOGICAL EFFECT OF AMBIENT ELECTROAEROSOLS IS DUE TO MATERIAL CHARGE CARRIERS, AS WELL AS TO THE CHARGE CARRIED BY THEM WHICH SIGNIFICANTLY IMPROVES THE PENETRATION AND RETENTION OF ELECTROAEROSOL PARTICLES IN THE DEPTHS OF THE BREATHING PASSAGES. (AUTHOR) (U)

AD-919 986L 6/16 6/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

COMBINED AEROION- AND ELECTRO-AEROSOL DEEP INHALATION THERAPY. (U)

MAY 74 7P RYSKA,I. V. I
REPT. NO. FTD-HC-23-1838-74

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; FOREIGN INFO.; 25 JUN 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN TECHNOLOGY DIV., ATTN; TDBDR, WRIGHT-PATTERSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE; EDITED TRANS. OF ELEKTROAEROSOLE (INTERNATIONAL CONGRESS ON AEROSOLS (1ST)) (WEST GERMANY) N6 P203-206 1973.

DESCRIPTORS; (*AEROSOLS, *CHEMOTHERAPEUTIC AGENTS), (*ELECTROSTATIC CHARGE, *RESPIRATORY SYSTEM), INHALATION, CHEMOTHERAPY, PATIENTS, PARTICLE SIZE, DISTRIBUTION, LUNG, IONS, ALLERGIC DISEASES, BRONCHI, RESPIRATION, AIR POLLUTION, TRANSLATIONS, WEST GERMANY (U)
IDENTIFIERS; ELECTROAEROSOLS (U)

THE COMBINATION OF AEROION-THERAPY WITH ELECTRO-AEROSOL DEEP INHALATION HAS MAXIMAL THERAPEUTIC EFFICIENCY IN CASE OF ALLERGIC DISEASES, INCLUDING BRONCHIAL ASTHMA. BEFORE ELECTRO--AEROSOL DEEP INHALATION TREATMENT, THE PATIENTS ARE EXPOSED TO AEROION-CONDITIONING (FOR 15 MINUTES) AND TO AN ELECTRIC HIGH-TENSION FIELD (60 TO 70 KV DIRECT VOLTAGE WITH NEGATIVE POLARITY). ACCORDING TO THE PROFESSIONAL LITERATURE, THIS RESULTS IN EASED RESPIRATION, INCREASED CILIARY FREQUENCY, EASIER EXPECTORATION AND COLLIMATED TRANSIT OF NEGATIVE IONS FROM THE CEILING ELECTRODE TO THE GROUND OR TO THE GROUNDED PATIENT RESPECTIVELY. IT LIKEWISE RESULTS IN BIOLOGICAL AND ELECTROSTATIC AIR PURIFICATION, ELIMINATING BACTERIA, VIRUSES AND DUSTS WHICH ARE NORMALLY INTRODUCED. (U)

AD-837 840 13/2 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

THE GERM CONTENT OF THE AIR AND ITS MEASUREMENT. (U)

JUL 68 6P GRUNDMANN,W. I
REPT. NO. TRANS-487

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE; TRANS. FROM ANNALEN DER METEOROLOGIE (WEST GERMANY) N3/5 1952, BY G. H. REINTAL.

DESCRIPTORS; (*AIR POLLUTION, MEASUREMENT), BIOLOGICAL CONTAMINATION, MEASURING INSTRUMENTS, AEROSOLS, DUST, GRAVIMETRIC ANALYSIS, ATMOSPHERES, FLUID FILTERS, MICROORGANISMS, DISTRIBUTION, WIND, WEST GERMANY, COUNTING METHODS (U)
IDENTIFIERS; TRANSLATIONS (U)

THE DESCRIBED GERM COUNTER MAKES IT POSSIBLE FOR THE FIRST TIME TO DETERMINE THE CONTAMINATION OF THE AIR EXACTLY AND TO KEEP IT UNDER CONSTANT SURVEILLANCE. IN PARTICULAR, A POSSIBILITY HAS BEEN GIVEN TO CORRELATE A DEFINED GERM COUNT WITH THE CONCEPT OF EPIDEMIOLOGICAL CRISES AS APPLIED TO THE DEGREE OF RESISTANCE POSSESSED BY THE EFFECTED LIVING BEINGS AND THE EFFECTIVENESS OF ANTI-EPIDEMIC MEASURES. THE GERM COUNTER MAY FURNISH VALUABLE SERVICE NOT ONLY WITH RESPECT TO HYGIENIC AND CLIMATIC STUDIES IN ENCLOSED SPACES BUT ALSO IN THE OPEN ATMOSPHERE, E.G. IN THE STUDY OF THE FILTERING EFFECT OF WIND BREAKS AGAINST PLANT PARASITES AND FOR THE DETERMINATION OF THE DEPENDENCE OF BACTERIAL DISSEMINATION ON AERIAL AND HORIZONTAL AIR MOVEMENT. (AUTHOR) (U)

AD-907 279L 6/17 15/3
EDGEWOOD ARSENAL MD

SUMMARY OF PROTECTION PROVIDED BY MILITARY MASKS AGAINST VARIOUS MILITARY AND NONMILITARY AGENTS. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION.
JAN 73 21P ROBINSON,DAVID I
REPT. NO. EA-SP-1800-10

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JAN 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*PROTECTIVE MASKS, *AIR POLLUTION), (*PROTECTIVE MASK FILTERS, LIFE EXPECTANCY), CHEMICAL WARFARE AGENTS, WASTE GASES, ABSORPTION, AMMONIA, GASES, POISONOUS GASES, EXHAUST GASES, CHLORINE, PROTECTIVE MASK CANISTERS, PARTICLES, DUST, VAPORS, ORGANIC COMPOUNDS, OXYGEN EQUIPMENT, AIRBORNE, SKIN(ANATOMY), EYE, BREATHING APPARATUS, DISASTERS, CARBON MONOXIDE, ARTIFICIAL RESPIRATION, INGESTION(PHYSIOLOGY), RESPIRATORS, TABLES(DATA), MODEL TESTS, DOSAGE (U)
IDENTIFIERS: CIVIL DISTURBANCES, MOUTH TO MOUTH RESUSCITATION, M-11 PROTECTIVE MASK CANISTERS, M-17 PROTECTIVE MASKS, M-17A1 PROTECTIVE MASKS, M-9A1 PROTECTIVE MASKS, *M-9 PROTECTIVE MASKS, OPLAN GARDEN PLOT PROGRAM, SORPTION (U)

THE REPORT SHOWS SOME OF THE CAPABILITIES OF M9/M9A1 SPECIAL PURPOSE MASKS AND THE M17/M17A1 FIELD PROTECTIVE MASKS AND OTHER MILITARY BREATHING APPARATUS TO PROVIDE PROTECTION AGAINST TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES FOR USE IN OPLAN GARDEN PLOT AND PROVIDES A CHART LISTING ALL KNOWN TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES VERSUS THE RECOMMENDED MILITARY MASKS OR BREATHING APPARATUS CAPABLE OF PROTECTING AN INDIVIDUAL AGAINST THEM. (AUTHOR) (U)

AD-692 688 6/13 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

AIR SAMPLING FOR RESPIRATORY DISEASE AGENTS IN ARMY RECRUITS. (U)

66 3P ARTENSTEIN,MALCOLM S. I
MILLER,WILLIAM S. I

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS V30 N3 P571-2 SEP 1966.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARMY BIOLOGICAL CENTER, FREDERICK, MD.

DESCRIPTORS: (*RESPIRATORY DISEASES, ADENOVIRUSES), (*ARMY PERSONNEL, RESPIRATORY DISEASES), (*ADENOVIRUSES, AEROSOLS), BACTERIAL AEROSOLS, EPIDEMIOLOGY, AIR, SAMPLERS, VIABILITY, NEISSERIA MENINGITIDIS, ACUTE RESPIRATORY DISEASE VIRUS, PARTICLE SIZE, MILITARY MEDICINE (U)
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES (U)

THE REPORT INDICATES THAT THE LARGE VOLUME AIR SAMPLER CAN PROVIDE BACTERIAL AND VIRAL ISOLATIONS FROM AIR COLLECTED IN FIELD SITUATIONS. MENINGOCOCCI WERE FOUND IN A CONCENTRATION OF ONE VIABLE PARTICLE PER 100 CU FT OF AIR, WHEREAS WITH ADENOVIRUSES ONE TISSUE CULTURE INFECTIVE DOSE WAS FOUND IN 300 TO 3,000 CU FT OF AIR. ALTHOUGH THE RESULTS PRESENTED ABOVE CAN ONLY BE CONSIDERED AS PRELIMINARY DATA, THEY DO INDICATE THE NEED FOR SAMPLING LARGE VOLUMES OF AIR IN STUDIES OF NATURALLY PRODUCED AEROSOLS. IT IS READILY APPARENT THAT AN ALL GLASS IMPINGER, OPERATING AT 12.5 LITERS PER MIN, IS INADEQUATE FOR COLLECTING SUCH LOW CONCENTRATIONS. THESE RESULTS MAY EXPLAIN OUR FAILURE IN THE PAST TO DETECT INFECTIVE PARTICLES IN EPIDEMIOLOGICAL SAMPLING WITH AN ALL GLASS IMPINGER. THE EXPERIMENTS SHOW THAT (1) ONE MUST DEMONSTRATE THE PRESENCE OF AIRBORNE VIABLE INFECTIVE ORGANISMS; (2) ONE MUST MEASURE CONCENTRATIONS AND PARTICLE SIZES; (3) ONE MUST DEMONSTRATE EXPERIMENTALLY THAT CONCENTRATIONS AND PARTICLES OF THIS SORT CAN CAUSE INFECTION; AND (4) ONE OUGHT TO SHOW DIRECTLY WHENCE THE PARTICLES HAVE COME FROM. THE PRESENT EXPERIMENTS SHOW THAT THE LVS CAN RECOVER AIRBORNE, VIABLE ORGANISMS AT VERY LOW CONCENTRATIONS IN NATURAL AEROSOLS. THESE STUDIES HAVE NOT DEMONSTRATED INFECTIVITY FOR MAN OF THE ORGANISMS COLLECTED, NOR HAVE THEY PROVED THE SOURCE OF THE ORGANISMS. (AUTHOR) (U)

AD-770 642 6/13 6/9 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING THEM IN SANITATION MICROBIOLOGY. (U)

NOV 73 201P KIKTENKO,V. S. (KUDRYAVTSEV, S. I. (CHUGUNOV,M. I. (PUSHCHIN,M. I. (

REPT. NO. FTD-MT-24-497-73
PROJ: FTD-T74-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. BAKTERIALNYE AEROZOLI I METODY IKH ISSLEDOVANIYA V SANITARNOI MIKROBIOLOGII. MOSCOW. 1968 PI-171. BY DEAN F. W. KOOLBECK.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *AIR POLLUTION, MICROORGANISMS, TRANSLATIONS, SANITATION, INFECTIONS, PUBLIC HEALTH, INDUSTRIAL MEDICINE, SAMPLERS, INSTRUMENTATION, USSR (U)

(CONTENTS: BACTERIAL AEROSOLS AND THEIR SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE; GENERAL METHODS AND PRINCIPLES FOR DETERMINING CONCENTRATIONS AND DIMENSIONS OF AEROSOL PARTICLES; INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL INVESTIGATION OF AIR. (U)

17

AD-894 540L 15/2
DUGWAY PROVING GROUND UTAH

SELECTION OF SAMPLE MATERIALS FOR EVALUATING BIOHAZARD OF NEW PROTECTIVE SUITS. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
JAN 68 9P REES,H. A. , JR.;LEE, ROBERT E. ;COLANTO,EMELDA I
REPT. NO. DPG-TN-68-3

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 21 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEPA-TT-JP-I(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*PROTECTIVE CLOTHING, *BACTERIAL AEROSOLS); (*BACILLUS SUBTILIS); (*SAMPLERS); LEAKAGE(FLUID), PENETRATION, ASBESTOS, CELLULOSE, ENVIRONMENTAL TESTS, TEST EQUIPMENT, SAMPLING, TEXTILES, SPORES, TOXICITY, ADHESIVES, GELATINS, BIOLOGICAL WARFARE AGENTS, VIABILITY, RECOVERY, COLLECTING METHODS (U)
IDENTIFIERS: BACILLUS SUBTILIS NIGER STRAIN, U/A REPORTS (U)

A STUDY WAS DESIGNED TO SELECT A SUITABLE MATERIAL FOR EVALUATING LEAKAGE OF NEW PROTECTIVE SUITS WHEN CHALLENGED WITH BACILLUS SUBTILIS VAR. NIGER. ADHESIVE PATCHES USED ON PREVIOUS TESTS WERE FOUND TO BE TOXIC TO THIS ORGANISM, AND THE LOW RECOVERY (4.0%) PROMPTED THE SEARCH FOR A MORE SUITABLE MATERIAL. ASBESTOS PADS GAVE THE GREATEST RECOVERY OF THE MATERIALS TESTED. CELLULOSE PADS PROVIDED SATISFACTORY RECOVERY AND WOULD BE AN ACCEPTABLE MATERIAL. A METHOD OF ATTACHING THE PADS TO SKIN AND CLOTHING WOULD HAVE TO BE DEVISED. (AUTHOR) (U)

D-805 615 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE VIRUS COLLECTION. (U)

ESCRIPTIVE NOTE: FINAL REPT.,
DEC. 65 122P RUHNKE,L. H. (PRINS,M.)
EPT. NO. 2911
ONTRACT: DA-18-064-AMC-229(A)
ROJ: DA-52906

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

ESCRIPTORS: (*SAMPLERS, PARTICLE SIZE), (*VIRUSES, AIRBORNE), (*PARTICLES, CLASSIFICATION), INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS, ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, IONS, COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR POLLUTION, ELECTRON MICROSCOPY, TABLES(DATA), SAMPLING, DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY, MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY, CALCULATION OF INSTRUMENT DIMENSIONS, OPERATIONAL CONSIDERATIONS, MEASUREMENTS, DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-848 570 15/2 14/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-SAMPLING DEVICES. (U)

JAN 69 30P CURTIS,JOHN J. (
REPT. NO. SMUFD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, AEROSOLS), (*AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS, ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE, FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA, EGGS (U)
IDENTIFIERS: EVALUATION, *PEEP(POROUS ELECTRODE ELECTROSTATIC PRECIPITATOR) (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES. BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS, ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES. (AUTHOR) (U)

AD-837 864 6/5 7/4
ARMY BIOLOGICAL LABS FREDERICK MD

INFECTION BY THE AERIAL ROUTE THROUGH DROPLETS AND DUST. (U)

DESCRIPTIVE NOTE: REPT. NO. 5,
JUL 68 50P LANGE,BRUNO ;
REPT. NO. TRANS-498

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ERGEBNISSE DER MIKROBIOLOGIE, IMMUNITAETSFORSCHUNG DER EXPERIMENTELLEN THERAPIE (GERMANY) V9 P237-294 1928.

DESCRIPTORS: (*AEROSOLS, *INFECTIOUS DISEASES), COMMUNICABLE DISEASES, BIOLOGICAL CONTAMINATION, RESPIRATION, MICROORGANISMS, HYGIENE, DUST, PARTICLE SIZE, RESISTANCE(BIOLOGY), MYCOBACTERIUM TUBERCULOSIS (U)
IDENTIFIERS: ASPIRATION, TRANSLATIONS (U)

THIS REPORT DELINEATES THE MANNER BY WHICH INFECTIOUS DISEASES ARE TRANSMITTED BY AERIAL MEANS AND DISCUSSES TYPES OF DISEASES SO TRANSMITTED. (U)

AD-686 356 6/13 14/2
FORT DETRICK FREDERICK MD

NOVEL MULTI-SLIT LARGE-VOLUME AIR SAMPLER. (U)

MAY 68 5P BUCHANAN,L. M. ;DECKER,H. M. ;FRISQUE,D. E. ;PHILLIPS,C. R. ; DAHLGREN,C. M. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V16 N8 P1120-1123 AUG 68.

DESCRIPTORS: (*MICROORGANISMS, *COLLECTING METHODS), (*SAMPLERS, AIR), MICROBIOLOGY, TEST EQUIPMENT, DESIGN, DISEASES, AIRBORNE, MEDICAL RESEARCH, HOSPITALS, EPIDEMIOLOGY, BACTERIA, VIRUSES, RICKETTSIA, FUNGI (U)
IDENTIFIERS: *AIR, *SAMPLERS (U)

SCIENTIFIC INVESTIGATORS WHO ARE INTERESTED IN THE VARIOUS FACETS OF AIRBORNE TRANSMISSION OF DISEASE IN RESEARCH LABORATORIES AND HOSPITALS NEED A SIMPLE, CONTINUOUS, HIGH-VOLUME SAMPLING DEVICE THAT WILL RECOVER A HIGH PERCENTAGE OF VIABLE MICROORGANISMS FROM THE ATMOSPHERE. SUCH A DEVICE MUST SAMPLE A LARGE QUANTITY OF AIR. IT SHOULD EFFECT DIRECT TRANSFER OF THE AIR INTO AN ALL-PURPOSE LIQUID MEDIUM IN ORDER TO COLLECT BACTERIA, VIRUSES, RICKETTSIA, AND FUNGI, AND IT SHOULD BE EASY TO USE. A SIMPLE MULTI-SLIT IMPINGER SAMPLER THAT FULFILLS THESE REQUIREMENTS HAS BEEN DEVELOPED. IT OPERATES AT AN AIR-SAMPLING RATE OF 500 LITERS/MIN, HAS A HIGH COLLECTION EFFICIENCY, FUNCTIONS AT A LOW PRESSURE DROP, AND, IN CONTRAST TO SOME EARLIER INSTRUMENTS, DOES NOT DEPEND UPON ELECTROSTATIC PRECIPITATION AT HIGH VOLTAGES. WHEN COMPARED TO THE ALL-GLASS IMPINGER, THE MULTI-SLIT IMPINGER SAMPLER COLLECTED MICROBIAL AEROSOLS OF SERRATIA MARCESCENS AT 82% EFFICIENCY, AND AEROSOLS OF BACILLUS SUBTILIS VAR. NIGER AT 78% EFFICIENCY. (AUTHOR) (U)

AD-750 313 6/6
EDGEWOOD ARSENAL MD

THE PRE-CLINICAL DETECTION OF CHEMICAL MUTAGENS AND THEIR EVALUATION AS GENETIC HEALTH HAZARDS. (U)

72 16P CAPIZZI,ROBERT L. ;
PAPIRMEISTER,BRUNO ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*MUTATIONS, *CHEMICALS), HUMANS, GENETICS, PUBLIC HEALTH, EXPOSURE(PHYSIOLOGY), DETECTION, BIOASSAY, PESTICIDES, DRUGS, AIR POLLUTION, MARKERS (U)
IDENTIFIERS: *MUTAGENS (U)

CHEMICALS POSSESSING A HIGH DEGREE OF MUTAGENIC ACTIVITY HAVE BEEN USED FOR A NUMBER OF YEARS AS LABORATORY TOOLS FOR ELUCIDATING BASIC GENETIC MECHANISMS. RECENT ATTENTION, HOWEVER, HAS FOCUSED ON THE POTENTIAL HUMAN GENETIC HEALTH HAZARD POSED BY EXPOSURE TO CHEMICALS. SINCE A MUTATION REPRESENTS A SUDDEN AND HERITABLE CHANGE IN GENETIC MATERIAL, THE EXPOSURE OF HUMAN POPULATIONS TO MUTAGENIC CHEMICALS MIGHT ACCOUNT FOR CERTAIN DISEASES. IT HAS BEEN SHOWN THAT CERTAIN ENVIRONMENTAL CHEMICALS, FOOD ADDITIVES, PESTICIDES, AND DRUGS CAN BE MUTAGENIC, CARCINOGENIC AND/OR TERATOGENIC IN SUBHUMAN SPECIES AND IN MAN. TO DATE THERE ARE NO STANDARDIZED TESTS OF CHEMICAL MUTAGENESIS WHICH WOULD PROVIDE THE DEFINITIVE ASSESSMENT OF A CHEMICAL'S POTENTIAL TO INDUCE MUTATIONS IN HUMANS. THIS PAPER DESCRIBES THE DEVELOPMENT OF A NEW HOST-MEDIATED ASSAY UTILIZING A MAMMALIAN CELL INDICATOR THAT IS SENSITIVE, RELIABLE AND REASONABLY EASY TO PERFORM. THE COMPARATIVE ADVANTAGES OF THIS SYSTEM OVER CONVENTIONAL METHODOLOGY ARE DISCUSSED. (U)

AD-920 892L 6/3 6/13 6/6
CALIFORNIA UNIV BERKELEY NAVAL BIOMEDICAL RESEARCH LAB

TECHNICAL PROGRESS REPORT NO. 99, 1 APRIL 1973 - 31 MARCH 1974. (U)

APR 74 385P VEDROS,NEYLAN A. ;
REPT. NO. UC-NBRL-74-1
CONTRACT: N00014-69-A-0200-1001
PROJ: NR-136-636, NR-306-001

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 24 JUL 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO CHIEF, OFFICE OF NAVAL RESEARCH, ATTN: CODE 443, ARLINGTON, VA. 22217.

DESCRIPTORS: (*BIOLOGICAL SYSTEMS, NAVAL RESEARCH), BIOLOGICAL LABORATORIES, PUBLIC HEALTH, MICROBIOLOGY, ENVIRONMENTAL ENGINEERING, PASTEURELLA PESTIS, VACCINES, AQUATIC ANIMALS, VIRUSES, BACTERIA, LUNG, HYDROCARBONS, ECOLOGY, DISEASE VECTORS, BIOLOGICAL CONTAMINATION, CLOUD COVER, AIR POLLUTION, VIABILITY, FREE RADICALS, BIODETERIORATION, EXPLOSIVES, RESPIRATORY DISEASES, PEST CONTROL, IMMUNIZATION, AEROSOLS, IMMUNOLOGY, ABSTRACTS, REPORTS (U)

IN THIS DOCUMENT THERE ARE REPORTS OF COMPLETED RESEARCHES AND OF STUDIES IN PROGRESS. THE SUBJECTS DEALT WITH FALL INTO TWO MAJOR CATEGORIES: MEDICAL MICROBIOLOGY AND EVIRONMENTAL BIOLOGY. STUDIES INCLUDE: EVALUATION OF PLAGUE VACCINE; CHARACTERIZATION OF VIRUSES AND BACTERIA FROM MARINE MAMMALS; IMMUNOLOGY AND PHYSIOLOGY ASSOCIATED WITH COCCIDIOMYCOSIS; MENINGOCOCCAL MENINGITIS AND ENTEROTOXEMIA WITH STUDIES ON CONTROL METHODS; AEROGENIC IMMUNIZATION WITH INFLUENZA VIRUS; RELATIONSHIP BETWEEN VIRUSES AND BACTERIA IN LUNG CLEARANCE; DETECTION, IDENTIFICATION AND ECOLOGICAL ROLE OF HYDROCARBONS IN NATURE; BIOLOGICAL CONTROL OF INSECT VECTORS; MICROBIAL CONTAMINATION IN PLANETARY CLOUDS; EFFECT OF ENVIRONMENTAL PARAMETERS ON SURVIVAL AND INFECTIVITY OF SELECTED MICROBES INCLUDING THE ROLE OF FREE-RADICALS; BIODEGRADATION OF T.N.T.; TOXICITY OF SUB-MICRON PARTICLES; ROLE OF AIR POLLUTANTS AND AIR IONS IN RESPIRATORY INFECTIONS; AND RABIES IN BATS AND CONTROL PROCEDURE IN MAN AND (U)

AD-919 947L 6/16 6/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

UNIPOLAR SECONDARY CHARGED ELECTRO-AEROSOL IN THERAPEUTIC USE. (U)

MAY 74 7P HELLAUER,H. I
RPT. NO. FTD-HC-23-1839-74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; FOREIGN INFO.; 24 JUN 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN TECHNOLOGY DIV., ATTN: TDBDR, WRIGHT-PATTERSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE: EDITED TRANS. OF ELEKTROAEROSOLE (INTERNATIONAL CONGRESS ON AEROSOLS (1ST)) (WEST GERMANY) N6 P210-212 1973.

DESCRIPTORS: (*AEROSOLS, *ELECTROSTATIC CHARGE); (*CHEMOTHERAPEUTIC AGENTS, *RESPIRATORY SYSTEM); INHALATION, CHARGED PARTICLES, IONS, PARTICLE SIZE, DISTRIBUTION, VOLTAGE, IODINE, TRACHEA, LUNG, RESPIRATORY DISEASES, DOGS, TRANSLATIONS, AUSTRIA (U)
IDENTIFIERS: *ELECTROAEROSOLS (U)

THE UNIPOLAR ELECTROSTATIC CHARGE OF INHALATION-AEROSOL IS EXPECTED TO SUPPLY INCREASED PARTICLE DEPOSITS IN THE RESPIRATORY TRACTS OF TEST SUBJECTS WHO ARE IN ELECTRICALLY GROUNDED SITUATION. EVEN THE EXCESSIVELY HIGH SUSPENSION CAPACITY OF VERY SMALL PARTICLES COULD BE OVERCOME. THE ADVANTAGE OFFERED BY THE PASSAGE OF VERY FINELY ATOMIZED INHALATION MATERIAL COULD BE UTILIZED. ELECTROAEROSOL THEREFORE SEEMS TO BE THE PREFERABLE CHOICE FOR REACHING THE DEEPER RESPIRATORY TRACTS. (U)

AD-894 716L 15/2 6/6
GCA CORP BEDFORD MASS GCA TECHNOLOGY DIV

DISSEMINATION OF INHALABLE AEROSOLS. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. MAY 67-MAY 72.
MAY 72 286P ENGELMAN,ARTHUR E. (DENNIS, RICHARD (LULL,DAVID (MEDLEY,W. H. (LONG,R. L. I
REPT. NO. GCA-TR-72-10-G
CONTRACT: DAAA15-67-C-0509
PROJ: DA-1-W-062116-A-081
TASK: 1-W-062116-A-08103
MONITOR: EA CR-1210-2

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; MAY 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AEROSOLS, DISTRIBUTION), ATOMIZATION, CHEMICAL WARFARE AGENTS, LIQUIDS, POWDERS, SOLIDS, VISCOSITY, PHYSICAL PROPERTIES, VX AGENT, CS AGENTS, GLYCEROLS, QUINONES, RESORCINOL, NICOTINIC ACID, SULFURIC ACID, GLASS, SIMULATION, ELECTROSTATICS, EVAPORATION, MELTING, SCATTERING, LIGHT, EXPLOSIVE CHARGES, PNEUMATIC DEVICES, SAMPLERS, RECOVERY, PARTICLE SIZE, DISTRIBUTION, COUNTING METHODS, PARTICLES, DEGRADATION, AEROBIOLOGY, COMPUTER PROGRAMS, ENVIRONMENTAL TESTS (U)
IDENTIFIERS: *AEROSOL PARAMETERS, ANTHRAQUINONE, BIS AGENT SIMULANT, BZ AGENTS, CASCADE IMPACTORS, COMPOSITION B EXPLOSIVE, EA AGENT 3580B, EA AGENT 3580A, EXPLOSIVE DISSEMINATION, LAURIC ACID, MALONATE/DI-N-PENTYL, MASS MEDIAN DIAMETER, PARTICLE COUNTERS(NONNUCLEAR), PERCENT RECOVERY, PHOSPHATE/TRIS(2-ETHYLHEXYL), PHOSPHONATE/BIS(2-ETHYLHEXYL), PHTHALATE/DIETHYL, PNEUMATIC DISSEMINATION. (U)

THIS REPORT REPRESENTS RESEARCH WHICH INVOLVED A NUMBER OF DETAILED PARAMETRIC INVESTIGATIONS. THE FOLLOWING MAJOR ACTIVITIES WERE CONDUCTED: (1) EXTENSIVE LIQUID DISSEMINATION TESTING INVOLVING GLYCERINE AND GLYCERINE EMULSION, SULFURIC ACID MIXTURE, DI-N-PENTYL MALONATE, DIETHYL PHTHALATE/TRIS (2 ETHYLHEXYL) PHOSPHATE, BIS(2-ETHYLHEXYL) PHOSPHONATE, AND VX; (2) A MORE LIMITED SOLID DISSEMINATION PROGRAM INVOLVING SOLID LAURIC ACID, AGENTS 3580A AND 3580B, PYREX GLASS. (U)

AD-488 932 15/2
MELPAR INC FALLS CHURCH VA

RESEARCH ON NEW AND MORE EFFECTIVE APPROACHES TO BIOLOGICAL AGENT DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY STATUS REPT. NO. 2, 1 MAY-1 AUG 66,
AUG 66 58P USDIN,V. (BLANCHARD,G. C. (SMITH,J.)
CONTRACT: DA-18-064-AMC-497(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DETECTION); (*BACTERIAL AEROSOLS, DETECTION); MOLECULES, VIRUSES, ENZYMES, PHOSPHORIC MONOESTER HYDROLASES, BIOLOGICAL STAINS, FLUORESCENCE, INSTRUMENTATION, AIR POLLUTION, ZINC, IONS, MYXOVIRUSES, ESCHERICHIA COLI, INFLUENZA VIRUS, CHYMOTRYPSIN, HEMOGLOBIN (U)

THIS REPORT DESCRIBES THE RESEARCH PERFORMED ON A PROGRAM OF BIOLOGICAL DETECTION DESIGNED TO DEVELOP MORE EFFECTIVE APPROACHES TO THE PROBLEM OF DETECTING SMALL NUMBERS OF AEROSOLIZED MICROORGANISMS AMONG OTHER NORMALLY PRESENT AIRBORNE PARTICLES. THIS PROGRAM IS DIVIDED INTO THREE TECHNICAL AREAS: (A) LABELED MACROMOLECULES, (B) RESUSPENSION AND PURIFICATION OF SMALL POPULATIONS OF VIRUSES, AND (C) PHOSPHATASE. IN SUMMARY, THE FOLLOWING TECHNICAL ACHIEVEMENTS HAVE BEEN MADE: (A) FLUORESCEIN ISOTHIOCYANATE-LABELED ENZYMES (CHYMOTRYPSIN, PEPSIN, AND ACYLASE) WERE PREPARED. STAINING OF NINE DIFFERENT ORGANISMS WITH THESE MATERIALS WAS COMPARED WITH STAINING WITH LABELED PROTEINOIDS AND LABELED LYSOZYME. A QUANTITATIVE, INSTRUMENTED, READOUT FOR THE ASSESSMENT OF FLUORESCENCE OF SINGLE STAINED CELLS WAS DEVISED. (B) IT WAS FOUND THAT THIN LAYERS OF DEAE CELLULOSE POWDER, OVERLYING SHORT COLUMNS OF SEPHADEX G-50, WERE EFFECTIVE IN RETAINING A WIDE VARIETY OF VIRUS PARTICLES, WHEREAS CULTURE FLUIDS WERE NOT RETAINED. THE VIRUSES TESTED INCLUDED: NDV; INFLUENZA A/PR8, WSN, B/GL AND JAP 305; SINDBIS, SEMLIKI FOREST, AND WEE.

AD-784 896 6/10 6/20
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

INDUSTRIAL HYGIENE ASPECTS OF CARBON MONOXIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 39P DIAMOND,PHILIP J
REPT. NO. EHL-M-74M-2
PROJ: EHL-M-HAI-346

UNCLASSIFIED REPORT

DESCRIPTORS: *CARBON MONOXIDE; *INDUSTRIAL HYGIENE, *AIR POLLUTION, TOXICITY, DETECTION, PHYSIOLOGICAL EFFECTS, CONTROL, SOURCES, EXPOSURE(PHYSIOLOGY), ENVIRONMENTS, INTERNAL COMBUSTION ENGINES, HEATING, AIRCRAFT, CHEMICALS, TABLES(DATA) (U)
IDENTIFIERS: AIR POLLUTION CONTROL, AIR POLLUTION EFFECTS(HUMANS), CARBONYLHEMOGLOBIN, INDOOR AIR POLLUTION (U)

CARBON MONOXIDE WAS RECENTLY THE SUBJECT OF A LABORATORY SEMINAR, AND THE INFORMATION IS PRESENTED HERE FOR THE CONVENIENCE OF THE FIELD BIOENVIRONMENTAL ENGINEER. CARBON MONOXIDE IS A COLORLESS, ODORLESS GAS GENERALLY PRODUCED BY INCOMPLETE OXIDATION OF ORGANIC OR CARBONACEOUS MATERIAL. IT IS THE MOST WIDELY ENCOUNTERED TOXIC GAS. FREQUENTLY IT IS ACCOMPANIED BY THE ODOR OF OTHER ORGANIC BY-PRODUCTS OF COMBUSTION SUCH AS ALDEHYDES AND HYDROCARBONS. THE THREE MAIN SOURCES OF THIS GAS ARE SMOKING, INTERNAL COMBUSTION ENGINES AND HEATING EQUIPMENT. THE TOXICITY OF CO, METHODS OF CO DETECTION, SUBCLINICAL CO EFFECTS, SOURCES OF CO AND EXPOSURE CONTROL MEASURES ARE DISCUSSED. (U)

AD-692 969 6/13
ARMY BIOLOGICAL CENTER FREDERICK MD

ASSESSMENT OF EXPERIMENTAL AND NATURAL VIRAL AEROSOLS. (U)

66 10P GERONE,PETER J. (COUCH, ROBERT B. (KEEFER,GARRETT V. (DOUGLAS,R. GORDON (DERRENBACHER,EDWARD B. (

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS V30 N3 P576-89 SEP 1966.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH PUBLIC HEALTH SERVICE, BETHESDA, MARYLAND.

DESCRIPTORS: (*VIRUS DISEASES, AEROSOLS), RESPIRATORY DISEASES, INFECTIONS, COXSACKIE VIRUS, AIR, SAMPLERS, BIOLOGICAL CONTAMINATION, AIRBORNE, PARTICLE SIZE (U)
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES (U)

THE PURPOSE OF THESE STUDIES WAS TO DESCRIBE PROCEDURES EMPLOYED IN STUDIES ON THE ROLE OF VIRAL AEROSOLS IN HUMAN VIRAL RESPIRATORY DISEASE. THE RESULTS SHOWED THAT VIRAL AEROSOLS PREPARED WITH THE COLLISON ATOMIZER CAN BE ADJUSTED TO A DESIRED CONTENT OF VIRUS, AND THAT THE SIZE DISTRIBUTION OF SUCH AEROSOLS COINCIDES TO MOST PARTICLES PRODUCED IN SNEEZES AND COUGHS FROM INFECTED VOLUNTEERS. THUS, THE CONVENIENCE AND PRECISION OF THE TECHNIQUE AND ITS RESEMBLANCE, AT LEAST IN PART, TO NATURAL VIRAL AEROSOLS INDICATE ITS POTENTIAL UTILITY FOR STUDIES OF THIS KIND. (AUTHOR) (U)

AD-734 735 6/3 19/2
FORT DETRICK FREDERICK MD

AEROSOL INOCULATOR FOR EXPOSURE OF HUMAN VOLUNTEERS. (U)

JUL 71 6P AERONE,PETER J. (COUCH, ROBERT B. (KNIGHT,VERNON (

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V22 N6 P899-903 NOV 71.

DESCRIPTORS: (*INJECTION(MEDICINE), VIRUSES), (*VIRUSES, *AEROSOLS), RESPIRATORY DISEASES, DOSAGE, HUMANS, EXPERIMENTAL DATA, INFECTIONS, LABORATORY EQUIPMENT (U)
IDENTIFIERS: *VIRAL AEROSOLS (U)

THE PERFORMANCE OF AN AEROSOL INOCULATOR FOR HUMAN VOLUNTEERS IS DESCRIBED IN TESTS THAT USE THE PR8 STRAIN OF TYPE A INFLUENZA VIRUS AND SODIUM FLUORESCEIN AS A PHYSICAL TRACER. VIRUS RECOVERY FROM THE AEROSOLS WAS APPROXIMATELY 1% AND WAS UNAFFECTED BY SUCH VARIABLES AS PROLONGED AEROSOLIZATION, TOTAL AIRFLOW, RELATIVE HUMIDITY, OR METHOD OF SAMPLING. THE RECOVERY OF SODIUM FLUORESCEIN FROM THE AEROSOL WAS APPROXIMATELY 12% AND WAS INFLUENCED BY TOTAL AIRFLOW RATES AND RELATIVE HUMIDITY. WITH THIS APPARATUS, IT SHOULD BE POSSIBLE TO DELIVER REASONABLY PREDICTABLE AND MEASURABLE DOSES OF RESPIRATORY VIRUSES TO HUMA SUBJECTS. THE DESIGN MAKES IT POSSIBLE TO DISMANTLE THE INOCULATOR INTO ITS COMPONENT PARTS TO FACILITATE PORTABILITY. (AUTHOR) (U)

AD-740 008 4/13
NAVAL BIOMEDICAL RESEARCH LAB OAKLAND CALIF

EFFECT OF OXYGEN ON AEROSOL SURVIVAL OF RADIATION SENSITIVE AND RESISTANT STRAINS OF ESCHERICHIA COLI B. (U)

JUN 71 12P COX,C. S. IRONDURANT,M. C. HATCH,M. T. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN JNL. MYC., CAMB., V69 P461-472 1971.

DESCRIPTORS: (*ESCHERICHIA COLI, OXYGEN), (*BACTERIAL AEROSOLS, *OXYGEN), TOXICITY, SENSITIVITY, SURVIVAL(PERSONNEL), RESISTANCE(BIOLOGY), STABILITY, RADIATION TOLERANCE, DEHYDRATION, NITROGEN, AIR, DEOXYRIBONUCLEIC ACIDS, HUMIDITY (U)

THE AEROSOL SURVIVALS IN AIR AND NITROGEN OF RADIATION SENSITIVE AND RESISTANT MUTANTS OF ESCHERICHIA COLI B HAVE BEEN DETERMINED WITH LOGARITHMIC AND RESTING PHASE BACTERIA. NO CONSISTENT CORRELATION WAS FOUND BETWEEN RADIATION SENSITIVITY AND AEROSOL SENSITIVITY IN THE STRAINS TESTED. HENCE, THE PHENOTYPES FIL HER EXR, WHICH DETERMINE SENSITIVITY TO RADIATION, DO NOT INFLUENCE AEROSOL SURVIVAL. I.E. THESE KNOWN MECHANISMS WHICH REPAIR RADIATION-INDUCED DAMAGE DO NOT OPERATE IN AEROSOL STRESSED E. COLI. IN ALL CASES THE SURVIVAL IN AIR WAS LESS THAN THAT IN NITROGEN PARTICULARLY SO FOR E. COLI B(S-1). THE EFFECT IS EXPLAINED IN TERMS OF A TOXIC ACTION OF OXYGEN. COMPARISON OF SURVIVAL OF LOG AND RESTING PHASE BACTERIA SHOW THAT LOG PHASE CELLS ARE LESS AEROSOL STABLE THAN ARE RESTING PHASE CELLS. THE ABILITY TO SYNTHESIZE DNA IN BACTERIA COLLECTED FROM THE AEROSOL WAS LESS THAN IN CONTROL UNSTRESSED BACTERIA, AND THIS EFFECT WAS INDEPENDENT OF THE PRESENCE OF OXYGEN. IT IS SHOWN THAT TWO DIFFERENT DEATH MECHANISMS OCCUR SIMULTANEOUSLY IN AEROSOLS AT LOW RELATIVE HUMIDITY. ONE MECHANISM IS OXYGEN DEPENDENT AND THE OTHER OXYGEN INDEPENDENT. (AUTHOR) (U)

AD-742 218 4/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXPERIMENTAL STUDY OF SURVIVAL RATE OF A DIPHTHERIC BACILLUS IN AEROSOL. (U)

JUN 71 10P ZHALKO-TITARENKO,V. P. I
REPT. NO. FTD-HT-23-527-71

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VOPROSY SANITARNOI BAKTERIOLOGII I VIRUSOLOGII, N.P., 1968 P71-75, BY VICTOR NESENZEFF.

DESCRIPTORS: (*CORYNEBACTERIUM DIPHTHERIAE, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, SURVIVAL(PERSONNEL)), EPIDEMIOLOGY, INFECTIONS, ENVIRONMENT, TEMPERATURE, SALIVA, MOISTURE, SCATTERING, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

A FORMULA WAS DEVELOPED FOR CALCULATING THE SURVIVAL RATE IN POLYDISPERSE AEROSOLS, WHICH EXCLUDES THE EFFECT OF PARTICLE SEDIMENTATION ON THE FINAL RESULT. THE LIMITS OF ITS APPLICATION ARE DETERMINED. SIGNIFICANT SENSITIVITY OF DIPHTHERIC BACILLUS TO THE CHANGES IN TEMPERATURE IS CLARIFIED: AT A TEMPERATURE BELOW ZERO THE CAUSATIVE AGENT DIES VERY SLOWLY, WHILE AT 35 DEGREES ITS SURVIVAL RATE IS SHARPLY REDUCED; AT 18 DEGREES THE SURVIVAL RATE OF A DEPHTHERIC BACILLUS IS IN THE INTERMEDIATE POSITION. SALIVA AND BROTH PROTECT THE MICROORGANISMS FROM DRYING UP FOR A CERTAIN PERIOD BY SLOWING DOWN THE EVAPORATION. THIS ENSURES A HIGH SURVIVAL RATE OF THE DIPHTHERIA CAUSATIVE AGENT FOR THE FIRST 45 MIN OF AEROSOL EXISTENCE. (U)

AD-723 249 4/13
FORT DETRICK FREDERICK MD

AEROSOL SURVIVAL OF PASTEURELLA TULARENSIS DISSEMINATED FROM THE WET AND DRY STATES. (U)

JAN 71 4P COX,C. P. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY. V21 NJ P482-486 1971.

DESCRIPTORS: (*PASTEURELLA TULARENSIS, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, SURVIVAL(PERSONNEL)), BACTERIA, VIABILITY, NITROGEN, AIR, HUMIDITY, OXYGEN, TOXICITY, VACCINES, DEHYDRATION (U)

THE AEROSOL SURVIVAL IN AIR AND IN NITROGEN WAS MEASURED FOR PASTEURELLA TULARENSIS LIVE VACCINE STRAIN, DISSEMINATED FROM THE WET AND DRY STATES. THE RESULTS SHOWED THAT MOST OF THE LOSS OF VIABILITY OCCURRED IN LESS THAN 2 MIN OF AEROSOL AGE, I.E., A RAPID INITIAL DECAY FOLLOWED BY A MUCH SLOWER SECONDARY DECAY. IN NITROGEN AND AIR, MINIMUM SURVIVAL OCCURRED AT 50 TO 55% RELATIVE HUMIDITY (RH) FOR WET DISSEMINATION AND AT 75% RH FOR DRY DISSEMINATION. THIS SHIFT INDICATED THAT AEROSOLS PRODUCED BY WET AND DRY DISSEMINATION WERE NOT EQUIVALENT AND SUGGESTED THAT SURVIVAL MIGHT NOT BE RELATED TO BACTERIAL WATER ACTIVITY OR CONTENT. THE RESULTS SHOWED THAT REHYDRATION IS THE KEY PROCESS WITH REGARD TO SURVIVAL, BUT THAT LYSIS ON REHYDRATION IS NOT A PRIMARY DEATH MECHANISM. THE EFFECTS OF OXYGEN WERE COMPLEX BECAUSE IT COULD BE EITHER PROTECTIVE OR TOXIC, DEPENDING UPON OTHER CONDITIONS. THE PROTECTIVE ACTION OF OXYGEN WAS THROUGH AN EFFECT ON THE SPENT CULTURE SUSPENDING FLUID. THE LATTER CONTAINED A TOXIC COMPONENT, THE ACTIVITY OF WHICH IS SUPPRESSED BY OXYGEN; POSSIBLY THE COMPONENT IS PUMPED AWAY DURING FREEZE-DRYING. A TOXIC EFFECT OF OXYGEN WAS NOT FOUND IN THE PRESENCE OF SPENT CULTURE MEDIA BECAUSE THE TOXICITY OF THE LATTER MASKS SUCH AN EFFECT. WITH OTHER BACTERIAL SUSPENDING FLUIDS, OXYGEN WAS SHOWN TO BE TOXIC AT LOW RH. SIMILAR EFFECTS WITH REGARD TO OXYGEN TOXICITY WERE ALSO FOUND WITH A LABORATORY STRAIN OF P. TULARENSIS. DIFFERENCES IN OXYGEN TOXICITY FOR AEROSOLS GENERATED FROM THE WET AND DRY STATES ALSO SUGGEST THAT BACTERIAL WATER CONTENT AND ACTIVITY DO NOT CONTROL AEROSOL SURVIVAL. (AUTHOR) (U)

AD-717 791 4/13
FORT DETRICK FREDERICK MD

EXPERIMENTAL TECHNIQUE FOR STUDYING AEROSOLS OF LYOPHILIZED BACTERIA. (U)

AUG 70 9P COX,CHRISTOPHER S. (DERR, JOHN S. , JR.(FLURIE,EUGENE G. (RODERICK, ROGER C. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY. V20 N4 P927-934 DEC 70.

DESCRIPTORS: (*BACTERIAL AEROSOLS, FREEZE DRYING), AEROBIOLOGY, BACTERIA, AEROSOL GENERATORS, PHYSICAL PROPERTIES, STABILITY, TEST METHODS (U)

AN EXPERIMENTAL TECHNIQUE IS PRESENTED FOR STUDYING AEROSOLS GENERATED FROM LYOPHILIZED BACTERIA BY USING ESCHERICHIA COLI B, BACILLUS SUBTILIS VAR. NIGER, ENTEROBACTER AEROGENES, AND PASTEURELLA TULARENSIS. AN AEROSOL GENERATOR CAPABLE OF CREATING FINE PARTICLE AEROSOLS OF SMALL QUANTITIES (10 MG) OF LYOPHILIZED POWDER UNDER CONTROLLED CONDITIONS OF EXPOSURE TO THE ATMOSPHERE IS DESCRIBED. THE PHYSICAL PROPERTIES OF THE AEROSOLS ARE INVESTIGATED AS TO THE DISTRIBUTION OF NUMBER OF AEROSOL PARTICLES WITH PARTICLE SIZE AS WELL AS TO THE DISTRIBUTION OF NUMBER OF NUMBER OF BACTERIA WITH PARTICLE SIZE. BIOLOGICALLY UNSTABLE VEGETATIVE CELLS WERE QUANTITATED PHYSICALLY BY USING 14C AND EUROPIUM CHELATE STAIN AS TRACERS, WHEREAS THE STABLE HEAT-SHOCKED B. SUBTILIS SPORES WERE ASSAYED BIOLOGICALLY. THE PHYSICAL PERSISTENCE OF THE LYOPHILIZED B. SUBTILIS AEROSOL IS INVESTIGATED AS A FUNCTION OF SIZE OF SPORE-CONTAINING PARTICLES. THE EXPERIMENTAL RESULT THAT PHYSICAL PERSISTENCE OF THE AEROSOL IN A CLOSED AEROSOL CHAMBER INCREASES AS PARTICLE SIZE IS DECREASED IS SATISFACTORILY EXPLAINED ON THE BASES OF ELECTROSTATIC, GRAVITATIONAL, INERTIAL, AND DIFFUSION FORCES OPERATING TO REMOVE PARTICLES FROM THE PARTICULAR AEROSOL SYSTEM. THE NET EFFECT OF THESE VARIOUS FORCES IS TO PROVIDE, AFTER A SHORT TIME INTERVAL IN THE SYSTEM (ABOUT 2 MIN), AN AEROSOL OF FINE PARTICLES WITH ENHANCED PHYSICAL STABILITY. THE DEPENDENCE OF PHYSICAL STABILITY OF THE AEROSOL ON THE SPECIES OF ORGANISM AND THE NATURE OF THE SUSPENDING MEDIUM FOR LYOPHILIZATION IS INDICATED. ALSO, LIMITATIONS AND GENERAL APPLICABILITY OF BOTH THE TECHNIQUE AND RESULTS ARE DISCUSSED. (U)

AD-709 283 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

USE OF BLOOD AGAR WITH SALT FOR SEPARATING TOXIGENIC STAPHYLOCOCCI FROM AIR. (U)

JAN 70 6P SAROCHINSKAYA,L. S. I
REPT. NO. FTD-HT-23-635-69
PROJ: FTD-6030209

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO (USSR) N3 P167 1969. BY L. THOMPSON.

DESCRIPTORS: (*STAPHYLOCOCCUS, DETECTION), (*BACTERIAL AEROSOLS, STAPHYLOCOCCUS), (*CLOSED ECOLOGICAL SYSTEMS, STAPHYLOCOCCUS), QUANTITATIVE ANALYSIS, CULTURE MEDIA, BLOOD, SALTS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE ARTICLE DESCRIBES THE USE OF BLOOD AGAR WITH 5-6.5 PERCENT SALT (PH 7.4-7.8) FOR CALCULATING THE AMOUNT OF TOXIGENIC STAPHYLOCOCCI PER UNIT VOLUME OF AIR IN CLOSED AREAS. THE ADVANTAGES OF USING THIS MEDIUM INCLUDE: REDUCED TIME, CONSERVATION OF THE MEDIUM, AND MORE RELIABLE RESULTS AS COMPARED TO OTHER CULTURE MEDIUMS. (AUTHOR) (U)

AD-688 799 6/13 6/6
ARMY BIOLOGICAL LABS FREDERICK MD

EXPERIMENTAL STUDY OF THE SURVIVAL OF DIPHTHERIA BACILLI IN AN AEROSOL. (U)

JUN 69 7P ZHALKO-TITARENKO,V. P. I
REPT. NO. TRANS-2459

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. VOPROSY SANITARNOI BAKTERIOLOGII I VIRUSOLOGII (PROBLEMS OF SANITARY BACTERIOLOGY AND VIROLOGY) MOSCOW, 1968 P71-75.

DESCRIPTORS: (*BACTERIAL AEROSOLS, CORYNEBACTERIUM DIPHTHERIAE), (*CORYNEBACTERIUM DIPHTHERIAE, VIABILITY), SEDIMENTATION, TEMPERATURE, MODELS(SIMULATIONS), USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE STUDY OF BACTERIAL AEROSOLS IS OF GENERAL INTEREST, SINCE MICROORGANISMS SPRAYED IN THE AIR ARE A MODEL OF THE MAIN LINK IN THE AERIAL MECHANISM OF TRANSMISSION OF INFECTION. THE MAIN TEST, CHARACTERIZING THE STATE OF MICROFLORA IN THE AIR, IS THE SURVIVAL OF MICROORGANISMS. A FORMULA WAS DEVELOPED FOR THE CALCULATION OF THE SURVIVAL RATE IN POLYDISPERSED AEROSOLS, EXCLUDING THE INFLUENCE OF SEDIMENTATION OF PARTICLES ON THE END RESULT; THE LIMITS OF ITS APPLICATION WERE DETERMINED. A CONSIDERABLE SENSITIVITY OF THE DIPHTHERIA BACILLUS TO CHANGES OF TEMPERATURE WAS REVEALED. AT A TEMPERATURE BELOW ZERO THE CAUSATIVE AGENT DIES OFF VERY SLOWLY, BUT AT A TEMPERATURE OF 35C ITS SURVIVAL RATE IS REDUCED SHARPLY; AT A TEMPERATURE OF 18C THE SURVIVAL RATE OF THE DIPHTHERIA BACILLUS OCCUPIES AN INTERMEDIATE POSITION. BY INHIBITING EVAPORATION, SALIVA AND BROTH PROTECT THE MICROORGANISMS FROM DESICCATION FOR A CERTAIN TIME. THIS EXPLAINS THE HIGH SURVIVAL RATE OF THE DIPHTHERIA CAUSATIVE AGENT IN THE FIRST 45 MINUTES OF EXISTENCE OF AN AEROSOL. (U)

AD-488 796 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

SURVIVAL OF PATHOGENIC STAPHYLOCOCCI AND STREPTOCOCCI IN THE AIR AND ON OBJECTS OF THE EXPERIMENTAL UNIT. (U)

JUN 69 11P YAROSHENKO,V. A. I
RPPT. NO. TRANS-2452

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. VOPROSY SANITARNOI BAKTERIOLOGII I VIRUSOLOGII (PROBLEMS OF SANITARY BACTERIOLOGY AND VIROLOGY), MOSCOW, 1965 P84-96.

DESCRIPTORS: (•STAPHYLOCOCCUS, •BACTERIAL AEROSOLS), (•STREPTOCOCCUS, BACTERIAL AEROSOLS), TEMPERATURE, HUMIDITY, SURVIVAL(PERSONNEL), HEMOLYTIC, LIGHT, VIABILITY, CULTURE MEDIA, EPIDEMIOLOGY, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

SURVIVAL OF PATHOGENIC STAPHYLOCOCCI AND STREPTOCOCCI IN THE AIR AND ON OBJECTS OF THE EXPERIMENTAL UNIT--TRANSLATION.

27

AD-486 353 6/12
FORT DETRICK FREDERICK MD

CONTAINMENT OF MICROBIAL AEROSOLS IN A MICROBIOLOGICAL SAFETY CABINET. (U)

MAY 68 6P BARBEITO,MANUEL S. ITAYLOR, LARRY A. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V16 NO P1226-1229 AUG 68.

DESCRIPTORS: (•BACTERIAL AEROSOLS, CONTAINMENT(NUCLEAR REACTORS)), INFECTIONS, SERRATIA MARCESCENS, DESIGN, PROTECTION, AIR, VELOCITY, SAFETY, HAZARDS (U)

THE OBJECTIVE OF THE TESTS REPORTED IN THE PAPER WAS TO DETERMINE (1) TO WHAT EXTENT MICROORGANISMS ESCAPE FROM THE TYPE OF MICROBIOLOGICAL CABINET NOW IN USE, (2) THE RESULTANT HAZARD TO OPERATING PERSONNEL, AND (3) CABINET CLOSURE CONDITIONS NECESSARY FOR OPERATIONS OF VARIOUS DEGREES OF HAZARD. (AUTHOR) (U)

AD-673 308 4/13 4/5
ARMY BIOLOGICAL LABS FREDERICK MD

A CONTRIBUTION TO THE QUESTION CONCERNING THE EFFICACY OF INHALATION VACCINATION. COMMUNICATION I. THE EFFECT OF THE INHALATION METHOD OF VACCINATION ON THE GENERAL IMMUNE RECONSTRUCTION OF THE ORGANISM. (U)

JUL 68 6P MASLOV,A. I. I
REPT. NO. TRANS-395

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR) V30 N11 P15-18 1959.

DESCRIPTORS: (*VACCINES, AEROBIOLOGY), (*BACTERIAL AEROSOLS, IMMUNITY), VIABILITY, RESPIRATION, EFFECTIVENESS, ANTIGEN ANTIBODY REACTIONS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

28 THE INHALATION METHOD OF VACCINATION INSURES A LASTING GENERAL IMMUNE RECONSTRUCTION OF THE ORGANISM. HOWEVER, LARGE CONCENTRATIONS OF VACCINE AND A CONSIDERABLE EXPOSURE OF THE ANIMAL TO THE ACTION OF ITS AEROSOL ARE DEMANDED. (AUTHOR) (U)

AD-736 097 6/6
NATIONAL INST FOR OCCUPATIONAL SAFETY AND HEALTH ROCKVILLE MD

HEALTH ASPECTS OF SMOKING IN TRANSPORT AIRCRAFT. (U)

DEC 71 92P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH FEDERAL AVIATION ADMINISTRATION, WASHINGTON, D. C. AND DEPARTMENT OF TRANSPORTATION, WASHINGTON, D. C.

DESCRIPTORS: (*TOBACCO, AIR POLLUTION), (*AIR POLLUTION, COMMERCIAL PLANES), (*PUBLIC HEALTH, CIVIL AVIATION), SMOKE, PERFORMANCE(HUMAN), FLIGHT CREWS, CARBON MONOXIDE, PARTICLES, HYDROCARBONS, AMMONIA, OZONE, THRESHOLDS(PHYSIOLOGY), CONFINED ENVIRONMENTS (U)
IDENTIFIERS: *SMOKING, *INDOOR AIR POLLUTION (U)

THE PURPOSE OF THE STUDY WAS TO DEFINE THE LEVELS OF CERTAIN COMBUSTION BY-PRODUCTS OF TOBACCO PRODUCED BY PASSENGERS' SMOKING; TO DETERMINE PASSENGERS' SUBJECTIVE REACTION TO TOBACCO SMOKE; AND TO OBTAIN PASSENGER OPINION ON THE NEED FOR REGULATORY CHANGE REGARDING THE CONTROL OF SMOKING IN COMMERCIAL PASSENGER AIRPLANES. THE STUDY INVOLVED (1) THE COLLECTION OF SAMPLES TO DETERMINE THE ENVIRONMENTAL EXPOSURE LEVELS TO CARBON MONOXIDE, PARTICULATE MATTER, POLYNUCLEAR HYDROCARBONS, AMMONIA, AND OZONE, AND (2) THE USE OF A QUESTIONNAIRE DURING TWENTY MILITARY AIRLIFT COMMAND (MAC) INTERNATIONAL FLIGHTS AND EIGHT DOMESTIC FLIGHTS. THE RESULTS OF ENVIRONMENTAL SAMPLING REVEALED VERY LOW LEVELS OF EACH CONTAMINANT MEASURED, MUCH LOWER THAN THOSE RECOMMENDED IN OCCUPATIONAL AND ENVIRONMENTAL AIR QUALITY STANDARDS. (AUTHOR) (U)

AD-676 897 13/2
KEIO UNIV TOKYO (JAPAN) DEPT OF INTERNAL MEDICINE

EFFECTS OF AIR POLLUTION ON JAPANESE CIVILIAN POPULATION. (U)

DESCRIPTIVE NOTE: REPT. NO. 2 (FINAL), JUN 66-JUN 68.
AUG 68 107P SASAMOTO,HIROSHI (YOKOYAMA, TETSURE)
CONTRACT: DA-92-557-FEC-39575
PROJ: DA-3-A-025601-A-827
TASK: 3-A-025601-A-82700
MONITOR: ARDG(FE) J-252-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, JAPAN), CIVILIAN PERSONNEL, RESPIRATORY DISEASES, ARMY RESEARCH, TOBACCO, SMOKE, PERIODIC VARIATIONS, MATHEMATICAL ANALYSIS, PHYSIOLOGY, SEX, POPULATION, PUBLIC HEALTH, TABLES(DATA)(U)
IDENTIFIERS: AGE COHORTS, GRAPHS(CHARTS) (U)

THE PULMONARY FUNCTION STUDIES INCLUDED: (A) THE ASSESSMENT OF THE SPIROMETRY AND THE MECHANICS OF BREATHING REPEATEDLY DONE ON THE LIMITED POPULATION. (B) THE BASELINE STUDIES ON THE ROUTINE PULMONARY FUNCTION TESTS. (C) SOME FUNDAMENTAL OBSERVATIONS OF THE AIRWAY RESISTANCE, THE AAD AND OF CO PULMONARY DIFFUSING CAPACITY ON THE CASES OF NORMAL HEALTHY AS WELL AS OF CHRONIC PULMONARY DISEASES. (D) EFFECTS OF BRONCHODILATOR AND OF CIGARETTE SMOKING ON THE VENTILATORY CAPACITY AND ON THE ALVEOLAR GAS EXCHANGE. THE YEAR-ROUND CLINICAL OBSERVATIONS WERE PERFORMED ON THE POPULATION WITH REGARD TO THE INCIDENCE OF BRONCHITICS AND THE CORRELATION OF THIS INCIDENCE WITH THE CIGARETTE SMOKING HABIT. (AUTHOR) (U)

AD-687 960 6/11 6/16
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN SUBMARINE MEDICAL RESEARCH LAB

SALIVARY THIOCYANATE SECRETION DURING A FLEET BALLISTIC MISSILE SUBMARINE PATROL. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JAN 69 10P WRAY,REGINALD P. (SHILLEN, WILLIAM R.)
REPT. NO. SMRL-561
MONITOR: NAVMED MM011.01-6007-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*TOBACCO, SMOKE), (*CONTROLLED ATMOSPHERES, AIR POLLUTION), (*SALIVA, *THIOCYANATES), SECRETION, CONFINED ENVIRONMENTS, MEASUREMENT, DIET, SUBMARINE PERSONNEL (U)

TOBACCO SMOKE PRODUCTS MAKE UP A VARIABLE PROPORTION OF THE ATMOSPHERIC CONTAMINANTS OF A FLEET BALLISTIC MISSILE SUBMARINE. A BIOLOGICAL MEASUREMENT OF THE DEGREE OF EFFECTIVE TOBACCO INHALATION BOTH IN SMOKERS AND NON-SMOKERS WOULD BE A USEFUL TOOL IN ENVIRONMENTAL HEALTH STUDIES. SALIVARY THIOCYANATE LEVELS SEEMED PROMISING AS SUCH A TOOL. THIRTY VOLUNTEERS WERE SELECTED FROM A SUBMARINE CREW: 14 SMOKERS AND 16 NON-SMOKERS. SALIVA WAS COLLECTED BY STANDARD METHODS DURING REFIT AND ON PATROL. THIOCYANATE CONTENT WAS MEASURED AND RELATIONSHIPS WERE SOUGHT WITH DIETARY, SMOKING AND PATROL FACTORS. STRONG POSITIVE RELATIONSHIPS WERE FOUND BETWEEN THE THIOCYANATE LEVELS AND SMOKING BUT NO SIGNIFICANT CHANGES WERE FOUND IN EITHER SMOKERS OR NON-SMOKERS ON PATROL. NO RELATIONSHIPS WERE FOUND WITH DIETARY FACTORS OR WITH THE AMOUNT SMOKED. IT IS CONCLUDED THAT THE ATMOSPHERIC EFFECTS ARE NOT EXTREME ENOUGH TO BE DETECTED BY THIS BIOLOGICAL METHOD. (AUTHOR) (U)

AD-772 084 6/10 6/20
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

DYNAMICS OF ASBESTOSIS AND ASBESTOTUBERCULOSIS AND CERTAIN FACTORS WHICH DETERMINE IT. (U)

NOV 72 11P KOGAN,F. M. (NOKRONOSOVA, K. A. (GUSELNIKOVA,N. A. (GULEVSKAYA,M. R. (BUNINOVICH,G. I. (

REPT. NO. FTD-HT-23-378-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF GIGIENA TRUDA I PROFESSIONALNYE ZABOLEVANIYA (USSR) N10 P4-8 1972, BY VICTOR MESENZEFF.

DESCRIPTORS: *ASBESTOS, *RESPIRATORY DISEASES, *TUBERCULOSIS, *PNEUMONIA, *OCCUPATIONAL DISEASES, HUMANS, MINERAL PRODUCTS, DUST, TRANSLATIONS, USSR, PATHOLOGY, LUNGS, HEART, TOXICITY, INDUSTRIAL MEDICINE (U)
IDENTIFIERS: *ASBESTOSIS (U)

IN SCLEROGENIC PNEUMOCONIOSES WITH ASBESTOSIS THE MOST UNFAVORABLE COURSE WAS OBSERVED IN THE POST-DUST PERIOD. HOWEVER, THESE DATA ARE BASED ON A RELATIVELY SMALL NUMBER OF OBSERVATIONS AND OVER SHORT PERIODS. FURTHERMORE, THE ROLE OF INDIVIDUAL FACTORS WHICH AFFECT THE DYNAMICS OF THE PROCESS IS UNCLEAR. IN VIEW OF THIS, MATERIALS WERE DEVELOPED FOR A DYNAMIC OBSERVATION CARRIED OUT AT THE MEDICAL AND SANITARY SECTION (MSS) OF THE 'URALASBEST' COMBINE FROM 1947 TO 1969 ON 390 INDIVIDUALS AFFLICTED WITH UNCOMPLICATED ASBESTOSIS AND 50 INDIVIDUALS AFFLICTED WITH ASBESTOTUBERCULOSIS. THE INITIAL DIAGNOSIS WAS CONFIRMED AT THE SVERDLOVSK INSTITUTE OF INDUSTRIAL HEALTH AND OCCUPATIONAL DISEASES. (U)

AD-753 514 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE CONNECTION OF PHYSICAL AND CHEMICAL FEATURES OF ASBESTOS WITH THEIR PATHOGENIC EFFECT. (U)

NOV 72 27P KOGAN,F. M. (

REPT. NO. FTD-HT-24-1477-72
PROJ: FTD-T72-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF PATOGENEZ PNEVMOKONIOZOV, TRUDY VSESOYUZNOGO SIMPOZIUMA, N.P., 18-20 NOV 68, SVERDLOVSK, 1970 P16-34, BY R. WALLACE.

DESCRIPTORS: (*INDUSTRIAL MEDICINE, ASBESTOS), (*CANCER, ASBESTOS), (*ASBESTOS, *RESPIRATORY DISEASES), MINERALS, DUST, PATHOLOGY, LUNG, USSR (U)
IDENTIFIERS: *OCCUPATIONAL DISEASES, *ASBESTOSIS, *CARCINOGENS, TRANSLATIONS (U)

A GENERAL OUTLINE IS GIVEN OF THE CARCINOGENIC BEHAVIOR OF ASBESTOS, AND THE EFFECT OF IT AND OTHER MINERAL POWDERS IN INDUCING FIBROSIS AND ASBESTOSIS. (AUTHOR) (U)

AD-715 808 6/10

PUGET SOUND NAVAL SHIPYARD BREMERTON WASH INDUSTRIAL HYGIENE DIV

ASBESTOS EXPOSURE AND CONTROL AT PUGET SOUND NAVAL SHIPYARD. (U)

MAR 70 81P HANGOLD,C. A. (BECKETT,R. R. (BESSNER,D. J.)

UNCLASSIFIED REPORT

DESCRIPTORS: (*INDUSTRIAL MEDICINE, *ASBESTOS), RESPIRATORY SYSTEM, DUST, SILICON, PUBLIC HEALTH, EXPOSURE(PHYSIOLOGY), CONTROL, HAZARDS, THRESHOLDS(PHYSIOLOGY), SAFETY, STANDARDS (U)
IDENTIFIERS: *OCCUPATIONAL DISEASES, *ASBESTOSIS, *INDOOR AIR POLLUTION, *ENVIRONMENTAL ENGINEERING (U)

A TWO AND ONE-HALF YEAR COMPARISON OF CHEST X-RAY FINDINGS IN THE TOTAL WORK FORCE OF PUGET SOUND NAVAL SHIPYARD SHOWS THAT 21% OF THE PIPE COVERERS AND INSULATORS HANDLING ASBESTOS HAVE PULMONARY ABNORMALITIES COMPARED TO 3.6% OF THE BOILERMAKERS WHO HAVE SOME EXPOSURE TO ASBESTOS AND SILICA, AND LESS THAN 1% OF THE CLERICAL WORKERS WITH NO KNOWN EXPOSURE TO INDUSTRIAL DUSTS. PULMONARY ABNORMALITIES HAVE REMAINED HIGH ALTHOUGH EVALUATION OF THE ASBESTOS DUST EXPOSURE OF PIPE COVERERS AND INSULATORS SHOWS THEIR TIME WEIGHTED EXPOSURES ARE BELOW THE CURRENT THRESHOLD LIMIT VALUE OF 5 MILLION PARTICLES PER CUBIC FOOT OF AIR. THE THRESHOLD LIMIT VALUE MAY BE TOO HIGH AND INTERMITTENT PEAK EXPOSURES MAY PLAY A GREATER ROLE THAN SUSPECTED. A NUMBER OF ENGINEERING CONTROL METHODS AND CHANGES IN WORK PRACTICES ARE SUGGESTED TO REDUCE ASBESTOS EXPOSURE. (AUTHOR) (U)

AD-639 822 6/5 6/20

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

DEMONSTRATION OF THE PRESENCE OF BERYLLIUM IN PULMONARY GRANULOMAS. (U)

SEP 65 11P PRINE, JAMES R. (BROKESHOULDER, SOLOMON F. (MCVEAN,DUNCAN E. (ROBINSON,F. R.)

REPT. NO. AMRL-TR-65-150.
PROJ: AF-6302.
TASK: 630206.

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF CLINICAL PATHOLOGY V45 N4 P498-89 APR 1966.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BERYLLIUM, TOXICITY), (*NEOPLASMS, BERYLLIUM), (*LUNG, NEOPLASMS), BIOPSY, HISTOLOGICAL TECHNIQUES, PATHOLOGY, DIAGNOSIS(MEDICINE), LASERS, SPECTROSCOPY, DOGS (U)

CHRONIC BERYLLIUM DISEASE WAS INDUCED EXPERIMENTALLY IN DOGS, AND THE PRESENCE OF BERYLLIUM WAS DEMONSTRATED IN SPECIFIC HISTOLOGIC STRUCTURES (PULMONARY GRANULOMAS) BY MEANS OF A LASER MICROPROBE AND EMISSION SPECTROSCOPY. THE ABILITY TO DETECT MINUTE AMOUNTS OF BERYLLIUM IN TISSUE SECTIONS OF NECROPSY AND BIOPSY MATERIAL CAN BE A SIGNIFICANT AID IN THE DIAGNOSIS OF BOTH ACUTE AND CHRONIC FORMS OF BERYLLIUM DISEASE. THE DETECTION OF BERYLLIUM IN HISTOLOGIC STRUCTURES REPRESENTS AN IMPORTANT ADVANCE IN THE STUDY OF THE PATHOGENESIS OF THIS DISEASE. (AUTHOR) (U)

AD-755 358 6/20
SYSTEMED CORP DAYTON OHIO

TOXIC HAZARDS RESEARCH UNIT ANNUAL TECHNICAL REPORT: 1972. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-MAY 72, AUG 72 169P HACKMEN,J. D. ;VERNOT,E. H. ;
REPT. NO. W72003
CONTRACT: F33615-70-C-1046
PROJ: AF-6302
TASK: 630201
MONITOR: AMRL TR-72-62

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED OCT 71, AD-739 593.

DESCRIPTORS: (*TOXICITY, GASES); (*ORGANIC SOLVENTS, TOXICITY); (*ROCKET PROPELLANTS, TOXICITY); (*CONFINED ENVIRONMENTS, TOXICITY); RESPIRATION, HALOGENATED HYDROCARBONS, CHLORINE COMPOUNDS, STANDARDS, SILANES, BROMINE COMPOUNDS, CORROSIVE GASES, SULFIDES, CHLORINE, AMMONIA, SPACECRAFT CABINS, METHYL HYDRAZINES, BROMINE COMPOUNDS, URINE, ALUMINUM COMPOUNDS, AIR POLLUTION, INGESTION(PHYSIOLOGY) (U)
IDENTIFIERS: METHANE/DICHLORO, AIR POLLUTION EFFECTS(ANIMALS), ALUMINUM PHOSPHIDES, BROMINE FLUORIDE(BRF5), CHLORINE PENTAFLUORIDE, CHEMISTRY, CLINICAL MEDICINE, *HAZARDOUS MATERIALS, HYDROGEN BROMIDE, HYDROGEN SULFIDE, HYDROGEN CHLORIDE, ETHYL BROMIDE (U)

THE ACTIVITIES OF THE TOXIC HAZARDS RESEARCH UNIT (THRU) FOR THE PERIOD OF JUNE 1971 THROUGH MAY 1972 ARE REVIEWED IN THIS REPORT. ACUTE INHALATION TOXICITY EXPERIMENTS WERE CONDUCTED ON HYDROGEN CHLORIDE (HCL) GAS AND AEROSOL, ETHYL BROMIDE (C_2H_5Br), HYDROGEN BROMIDE (HBr), HYDROGEN SULFIDE (H_2S), AMMONIA (NH_3), CHLORINE (Cl_2), AND SILANE (SiH_4). SUBACUTE TOXICITY STUDIES WERE CONDUCTED ON CHLORINE PENTAFLUORIDE (ClF_5), DICHLOROMETHANE (CH_2Cl_2) AND COAL TAR VOLATILES. FURTHER TOXICITY STUDIES OF SUBACUTE AND CHRONIC RESPONSES TO INHALED MONOMETHYLHYDRAZINE (MMH) ARE ALSO DESCRIBED. (AUTHOR) (U)

AD-751 938 13/2 6/20
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

GUIDES FOR SHORT-TERM EXPOSURES OF THE PUBLIC TO AIR POLLUTANTS. (U)

DEC 71 6P FAVORITE,FRANK G. ;
ROSLINSKI,LAWRENCE M. ;WANDS,RALPH C. ;
REPT. NO. AMRL-TR-71-120-PAPER-16
PROJ: AF-6302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ANNUAL CONFERENCE ON ENVIRONMENTAL TOXICOLOGY (2ND), FAIRBORN, OHIO, 31 AUG, 1-2 SEP 71, SPONSORED BY THE SYSTEMED CORP., DAYTON, OHIO. SEE ALSO AD-751 937 AND AD-751 939.

DESCRIPTORS: (*AIR POLLUTION, STANDARDS); (*NITROGEN OXIDES, AIR POLLUTION); (*CORROSIVE GASES, AIR POLLUTION); (*PUBLIC HEALTH, AIR POLLUTION); ACIDS, HYDROGEN COMPOUNDS, FLUORIDES, CHLORIDES, TOXICITY, EXPOSURE(PHYSIOLOGY) (U)
IDENTIFIERS: *AIR POLLUTION STANDARDS, *HYDROGEN CHLORIDE, *FLUORIDES, *HYDROGEN (U)

THE SHORT-TERM EXPOSURE LIMITS FOR THREE AIR POLLUTANTS - NITROGEN OXIDES, HYDROGEN CHLORIDE, AND HYDROGEN FLUORIDE - AS DETERMINED BY THE NATIONAL ACADEMY OF SCIENCES, ARE PRESENTED. (U)

AD- 919 9ASL 6/20 6/6
ABERDEEN PROVING GROUND MD MATERIEL TESTING DIRECTORATE

METHODOLOGY INVESTIGATION, PHYSIOLOGICAL EFFECTS OF EXPOSURE TO REPETITIVE VARYING CO CONCENTRATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 31 JUL 72-23 JUL 73, SEP 73 34P YARBOROUGH,B. H. I
REPT. NO. APG-MT-4398
PROJ: RDT/E-1-U-6A5702-D-62B, USATECOM-9-CO-001-000-088

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; SEP 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY TEST AND EVALUATION COMMAND, ATTN: AMSTE-ME, ABERDEEN PROVING GROUND, MD. 21005.

DESCRIPTORS: (*EXHAUST GASES, *TOXIC TOLERANCES), (*AIR POLLUTION, STANDARDS), GUN SMOKE, VEHICLES, CARBON MONOXIDE, NITROGEN OXIDES, AMMONIA, HAZARDS, COMBUSTION PRODUCTS, ODORS, HEMOGLOBIN, DETECTION, SAMPLING, SAMPLERS, AIRCRAFT GUNS, GUNS, CONCENTRATION(CHEMISTRY), ARMY PERSONNEL, AERIAL GUNNERS, INSTRUMENTATION, GAS ANALYSIS, GUNNERY (U)

THIS STUDY WAS CONDUCTED AT ABERDEEN PROVING GROUND (APG), MARYLAND FROM 31 JULY 1972 TO 23 JULY 1973. THE PURPOSE OF THE STUDY WAS TO DETERMINE, THROUGH THE SURGEON GENERAL, ACCEPTABLE STANDARDS OF EVALUATING THE PHYSIOLOGICAL EFFECTS OF REPETITIVE EXPOSURE OF PERSONNEL TO VARYING CARBON MONOXIDE, NITROGEN DIOXIDE, AND AMMONIA CONCENTRATIONS EXPERIENCED IN WEAPONS FIRING AND THE OPERATION OF VEHICLE ENGINES AND TO DOCUMENT THE MOST UP-TO-DATE TECHNIQUES AND STANDARDS IN APPROPRIATE TEST OPERATIONS PROCEDURE. INFORMATION WAS OBTAINED FROM A NUMBER OF DEPARTMENT OF DEFENSE (DOD) AGENCIES AND INDUSTRIAL FIRMS TO DETERMINE IF ANY RECENT TECHNIQUES AND INSTRUMENTATION HAD BEEN DEVELOPED FOR MEASUREMENT OF TOXIC GAS CONCENTRATION. A RECOMMENDED MISSION TIME APPLICABLE TO TEST PERSONNEL WAS ESTABLISHED. IT WAS CONCLUDED THAT APG MUST ACTIVELY MONITOR BOTH DOD AGENCIES AND INDUSTRY IN ORDER TO KEEP ABREAST OF DEVELOPMENTS IN METHODOLOGY FOR MEASURING TOXIC GASES. IT IS RECOMMENDED THAT TEST OPERATIONS PROCEDURE/MATERIEL TEST PROCEDURE 2-2-619 BE REVISED TO INCORPORATE THE (U)

AD- 686 251 6/5
DEFENCE STANDARDS LABS MARIBYRNONG (AUSTRALIA)

THE EFFECT OF PETROLEUM DISTILLATES ON LUNG SURFACTANT. (U)

MAY 68 8P KEEN,T. E. B. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AUSTRALIAN PAEDIATRIC JNL.; V9 N9 P229-235 DEC 68. NO COPIES FURNISHED.

DESCRIPTORS: (*PETROLEUM PRODUCTS, LUNG), (*LUNG, HAZARDS), GASOLINE, KEROSENE, PATHOLOGY, DOSAGE, INGESTION(PHYSIOLOGY), AEROSOLS, VAPORS, RESPIRATION, TRACHEA, RECOVERY, RATS (U)
IDENTIFIERS: *PETROLEUM DISTILLATES (U)

THE EFFECT OF 3 TYPES OF PETROLEUM DISTILLATES ON THE PULMONARY SURFACTANT LAYER WAS EXAMINED BY PRESSURE VOLUME STUDIES ON THE RAT LUNG. THE RESULTS INDICATE THAT WHEN SMALL DOSES OF EACH OF THE DISTILLATES ARE INTRODUCED INTO THE TRACHEA, THEY PRODUCE A MARKED CHANGE IN THE SURFACE PROPERTIES OF THE LINING OF THE LUNG AND THAT THIS IS DEPENDENT ON THE DOSE. THE INHALATION OF VAPOURS AND AEROSOLS WAS INEFFECTIVE, AND RELATIVELY LARGE INTRAVENOUS DOSES OF DISTILLATE WERE REQUIRED TO CONSISTENTLY PRODUCE CHANGES IN THE LUNG. THERE WAS NO EVIDENCE THAT DISTILLATE ABSORBED FROM THE GUT COULD CAUSE ANY ALTERATION IN PULMONARY STABILITY. THE EFFECTS OF THESE 3 SUBSTANCES ON THE LUNG WERE SIMILAR AND IN EACH CASE THE LUNG RECOVERED ITS NORMAL SURFACE PROPERTIES WITHIN 48 HOURS DESPITE THE PRESENCE OF DISCRETE MACROSCOPIC AREAS OF DAMAGE IN THE LUNG. THE FINDINGS SUGGEST THAT THE INITIAL ACUTE SYMPTOMS AND SIGNS ARE THE RESULT OF DAMAGE TO THE PULMONARY SURFACTANT LAYER AND ASPIRATION IS THE ONLY IMPORTANT CAUSE OF THIS TYPE OF PULMONARY DAMAGE. (AUTHOR) (U)

AD-674 134 4/5 6/20
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

ABSORPTION AND EXCRETION OF MERCURY IN DENTAL PERSONNEL: PRELIMINARY STUDY. (U)

DESCRIPTIVE NOTE: REPT. FOR 1 MAR-31 AUG 67.
JUN 68 11P SEGRETO,VINCENT A. ;JERMAN, ALBERT C. ;SHANNON,IRA L. ;
REPT. NO. SAM-TR-68-59
PROJ: AF-7755
TASK: 775512

UNCLASSIFIED REPORT

DESCRIPTORS: (*METAL POISONING, *DENTAL PERSONNEL); MERCURY, AEROSOLS, ABSORPTION(BIOLOGICAL), URINE, MERCURY COMPOUNDS, VAPORS, EXCRETION (U)

THE CONCENTRATION OF MERCURY IN THE ATMOSPHERE WAS EXAMINED IN TWO AIR FORCE DENTAL CLINICS AND FOUND TO BE CONSIDERABLY HIGHER THAN IN A MEDICAL LABORATORY WHERE NO MERCURY OR MERCURIAL COMPOUNDS ARE USED. URINE SAMPLES WERE COLLECTED DURING AN 8-HOUR PERIOD EACH DAY IN BOTH THE CLINICS AND THE LABORATORY. ANALYSIS OF THE URINE OF DENTAL PERSONNEL IN THE CLINICS SHOWED A GREATER CONCENTRATION OF MERCURY THAN FOUND IN THE URINE OF THE MEDICAL PERSONNEL WORKING IN THE LABORATORY. (AUTHOR) (U)

AD-760 653 13/2 6/5 6/6 6/18
CALIFORNIA UNIV BERKELEY

PROCEEDINGS OF THE BERKELEY SYMPOSIUM ON MATHEMATICAL STATISTICS AND PROBABILITY (6TH): HELD AT THE STATISTICAL LABORATORY, UNIVERSITY OF CALIFORNIA ON APRIL 9-12, 1971; JUNE 14-21, 1971 AND JULY 19-22, 1971. VOLUME VI. EFFECTS OF POLLUTION ON HEALTH. (U)

72 602P LE CAM,LUCIEN M. ;NEYMAN, JERZY ;SCOTT,ELIZABETH L. ;
CONTRACT: AF-AFOSR-1951-70
MONITOR: AFOSR TR-72-1935

UNCLASSIFIED REPORT
AVAILABILITY: PAPER COPY AVAILABLE FROM UNIVERSITY OF CALIFORNIA PRESS, BERKELEY AND LOS ANGELES, CALIF. 94720, $22.50.
SUPPLEMENTARY NOTE: LIBRARY OF CONGRESS CATALOG CARD NO. 49-8189. SEE ALSO VOLUME I, AD-747 457.

DESCRIPTORS: (*RADIATION EFFECTS, PUBLIC HEALTH); (*AIR POLLUTION, *PUBLIC HEALTH); (*WATER POLLUTION, PUBLIC HEALTH); ECOLOGY, SYMPOSIA, RADIOBIOLOGY, RADIATION HAZARDS, NEOPLASMS, MUTATIONS, HERBICIDES, TOXICITY, POPULATION, STATISTICAL ANALYSIS, EPIDEMIOLOGY, NUCLEAR POWER PLANTS, INFANTS (U)
IDENTIFIERS: *WATER POLLUTION EFFECTS(ANIMALS), X RAY FLUORESCENCE ANALYSIS, 2-4-5-T HERBICIDES, *AIR POLLUTION EFFECTS(ANIMALS), BIOMATHEMATICS, PHENOXYACETIC ACID/2-4-5-TRICHLORO, STRONTIUM 90, TRACE ELEMENTS, ENVIRONMENTS, SURVEYS (U)

(CONTENTS: STATISTICAL PROBLEMS AND STRATEGIES IN ENVIRONMENTAL EPIDEMIOLOGY; RESEARCH PROGRAMS OF THE ATOMIC ENERGY COMMISSION'S DIVISION OF BIOLOGY AND MEDICINE RELEVANT TO PROBLEMS OF HEALTH AND POLLUTION; STATISTICAL ASPECTS OF A COMMUNITY HEALTH AND ENVIRONMENTAL SURVEILLANCE SYSTEM; ENVIRONMENTAL RADIATION AND HUMAN HEALTH; EPIDEMIOLOGIC STUDIES OF CARCINOGENESIS BY IONIZING RADIATION; RADIATION AND INFANT MORTALITY--SOME HAZARDS OF METHODOLOGY; MONITORING HUMAN BIRTH DEFECTS: METHODS AND STRATEGIES; AVERAGING TIME AND MAXIMA FOR AIR POLLUTION CONCENTRATIONS; EFFECTS OF ENVIRONMENTAL POLLUTANTS UPON ANIMALS OTHER THAN MAN; ECOLOGICAL AND ENVIRONMENTAL PROBLEMS IN THE APPLICATION OF BIOMATHEMATICS; EFFECTS OF TOXICITY ON ECOSYSTEMS; SKELETAL PLAN FOR A COMPREHENSIVE EPIDEMIOLOGIC STUDY OF POLLUTION; EFFECTS OF EXPOSURE ON GROWTH AND (U)

AD-770 862 6/13 6/9 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING THEM IN SANITATION MICROBIOLOGY. (U)

NOV 73 201P KIKTENKO,V. S. (KUDRYAVTSEV, S. I. (CHUGUNOV,N. I. (PUSHCHIN,N. I. (

REPT. NO. FTD-MT-24-497-73
PROJ: FTD-T74-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. BAKTERIALNYE AEROZOLI I METODY IKH ISSLEDOVANIYA V SANITARNOI MICROBIOLOGII, MOSCOW, 1968 P1-171. BY DEAN F. W. KOOLBECK.

DESCRIPTORS: *BACTERIAL AEROSOLS, *AIR POLLUTION, MICROORGANISMS, TRANSLATIONS, SANITATION, INFECTIONS, PUBLIC HEALTH, INDUSTRIAL MEDICINE, SAMPLERS, INSTRUMENTATION, USSR (U)

(CONTENTS: BACTERIAL AEROSOLS AND THEIR SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE(GENERAL METHODS AND PRINCIPLES FOR DETERMINING CONCENTRATIONS AND DIMENSIONS OF AEROSOL PARTICLES(INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL INVESTIGATION OF AIR. (U)

AD-776 107 6/4
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

HYGENIC SIGNIFICANCE OF THE ACCUMULATION AND CIRCULATION OF STABLE PESTICIDES. (U)

DEC 73 9P SPYNU,E. I. (

REPT. NO. FSTC-HT-23-2316-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY GIGIENY I TOKSIKOLOG PESTITSIDOV, MEDITSINA MOSCOW, 1970 P212-218. TRUDY NAUCHNOI SESSII AKADEMII NOUK MEDITSINSKIKH NOUK SSSR (SIC).

DESCRIPTORS: *PESTICIDES, *PUBLIC HEALTH, CONTAMINATION, ENVIRONMENTS, TOXICOLOGY, HYGIENE, USSR, TRANSLATIONS, DISTRIBUTION, ACCUMULATION, CONTROL (U)
IDENTIFIERS: *ENVIRONMENTAL HEALTH, FOOD CHAINS, CHLORINE ORGANIC COMPOUNDS (U)

THE REPORT EXAMINES: THE EXISTING PROPHYLACTIC SYSTEMS FOR THE USE OF CHEMICAL POISONS(THE SCIENTIFIC APPROACHES AND CRITERIA FOR ESTIMATING THEIR IMPORTANCE FOR HYGIENE(AND THE ESTABLISHMENT OF MAXIMUM PERMISSIBLE LEVELS IN VARIOUS OBJECTS OF THE EXTERNAL ENVIRONMENT AND REGULATING CONDITIONS FOR THEIR USE. (U)

AD-733 554 4/13 6/9
FORT DETRICK FREDERICK MD

THERMAL INACTIVATION OF AEROSOLIZED 'BACILLUS SUBTILIS' VAR. 'NIGER' SPORES. (U)

JUN 71 3P MULLICAN,CHARLES L. I BUCHANAN,LEE M. IHOFFMAN,ROBERT K. I

UNCLASSIFIED REPORT
AVAILABILITY: PB. IN APPLIED MICROBIOLOGY, V22 N4 P557-559 OCT 71.

DESCRIPTORS: (*BACTERIAL AEROSOLS, HEAT TREATMENT), (*STERILIZATION, BACTERIAL AEROSOLS), BACILLUS SUBTILIS, SPORES, BACTERIA, ATTENUATION, HIGH-TEMPERATURE RESEARCH (U)

A HOT-AIR STERILIZER CAPABLE OF EXPOSING AIRBORNE MICROORGANISMS TO ELEVATED TEMPERATURES WITH AN ALMOST INSTANTANEOUS HEATING TIME WAS DEVELOPED AND EVALUATED. WITH THIS APPARATUS, AEROSOLIZED BACILLUS SUBTILIS VAR. NIGER SPORES WERE KILLED IN ABOUT 0.02 SEC WHEN EXPOSED TO TEMPERATURES ABOVE 260 C. THIS IS ABOUT 500 TIMES FASTER THAN KILLING TIMES REPORTED BY OTHERS. EXTRAPOLATION AND COMPARISON OF DATA ON THE TIME AND TEMPERATURE REQUIRED TO KILL B. SUBTILIS VAR. NIGER SPORES ON SURFACES SHOW THAT APPROXIMATELY THE SAME KILLING TIME IS REQUIRED AS IS NECESSARY FOR SPORES IN AIR, IF CORRECTIONS ARE MADE FOR THE HEATING TIME OF THE SURFACE. (AUTHOR) (U)

AD-727 319 4/13 6/9
CALIFORNIA UNIV BERKELEY NAVAL BIOMEDICAL RESEARCH LAB

EFFECT OF RELATIVE HUMIDITY ON AEROSOL PERSISTENCE OF STREPTOCOCCUS SALIVARIUS. (U)

NOV 70 9P FLYNN,DENNIS D. IGOLDBERG, LEONARD J. I
CONTRACT: PHS-HE-10342, PHS-ES-00984

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ARCHIVES OF ENVIRONMENTAL HEALTH, V23 P90-92 JUL 71.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 8 OCT 70.

DESCRIPTORS: (*STREPTOCOCCUS, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, HUMIDITY), (*DENTISTRY, STREPTOCOCCUS), BIOLOGICAL CONTAMINATION, VIABILITY, ENVIRONMENT, HYGIENE, GERMICIDES, ULTRAVIOLET RADIATI(U)

THREE DIFFERENT STRAINS OF THE COMMON ORAL INHABITANT, STREPTOCOCCUS SALIVARIUS, WERE ATOMIZED INTO THE AVAL BIOMEDICAL RESEARCH LABORATORY'S PROGRAMMED ENVIRONMENT. AEROSOL FACILITY CONTROLLED AT 82 F (28C) AND AT EIGHT RELATIVE HUMIDITY VALUES RANGING FROM 0 TO 92%. THE ABILITY OF THESE ORGANISMS TO REMAIN VIABLE UNDER SUCH CONDITIONS, WITH A NEGLIGIBLE DROP IN VIABLE COUNT DURING AN OBSERVATION PERIOD OF 12 HOURS, IS INDICATIVE OF THE HAZARD ONE MAY ENCOUNTER IN A DENTAL OFFICE. (AUTHOR) (U)

AD-600 ORb 15/2 6/13
BIONETICS RESEARCH LABS INC FALLS CHURCH VA

DETECTING SMALL NUMBERS OF PATHOGENIC MICROORGANISMS AMONG AIRBORNE PARTICLES. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 2, 2 JUN-2 SEP 66.
SEP 66 29P WEETALL,HOWARD H. I
CONTRACT: DA-18-064-AMC-498(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIA, DETECTION), AEROSOLS, FLUID FILTERS, CLAY MINERALS, SERRATIA MARCESCENS, ANTIGEN ANTIBODY REACTIONS, ANTIGENS + ANTIBODIES, TEST METHODS, PARTICLE SIZE, VIRUSES, SIMULATION, IMMUNE SERUMS (U)
IDENTIFIERS: BENTONITE (U)

GRADED FILTRATION TECHNIQUES WITH FLOTRONIC SILVER MEMBRANES WERE EMPLOYED TO OBTAIN SUSPENSIONS OF BOTH SENSITIZED AND UNSENSITIZED BENTONITE PARTICLES WITHIN A RELATIVELY NARROW SIZE RANGE. THESE SUSPENSIONS WERE THEN USED IN STUDIES TO QUANTITATE BENTONITE PROTEIN ADSORPTION REACTIONS AND TO DETERMINE OPTIMAL CONDITIONS FOR BENTONITE-ANTIBODY-ANTIGEN REACTIONS. SERRATIA MARCESCENS ANTIBODY, PURIFIED BY IMMUNOADSORBENT COLUMN CHROMATOGRAPHY PROCEDURES, WAS USED TO SENSITIZE BENTONITE IN AN ATTEMPT TO OBTAIN PARTICLES WITH INCREASED SENSITIVITY FOR REACTION WITH SUSPENSIONS OF WHOLE ORGANISMS. VIRAL AND BACTERIAL ANTIGENS TO FOUR SIMULANT AGENTS WERE PREPARED AND USED FOR THE DEVELOPMENT OF BENTONITE FLOCCULATION REACTIONS, FOR THE TITRATION OF SPECIFIC ANTIBODY. FILTRATION SCREENING TECHNIQUES WERE EXPLORED AS A SYSTEM FOR DETECTING AGGREGATES CAUSED BY REACTION OF BENTONITE-ANTIBODY WITH SERRATIA MARCESCENS ORGANISMS.
(AUTHOR) (U)

AIR POLLUTION
Pesticides

AD-720 391 6/6 13/2
WORKING GROUP ON PESTICIDES ROCKVILLE MD

SUMMARY OF INTERIM GUIDELINES FOR DISPOSAL OF SURPLUS OR WASTE PESTICIDES AND PESTICIDE CONTAINERS. (U)

DEC 70 38P
REPT. NO. WGP-DS-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*PESTICIDES, DISPOSAL), (*CONTAINERS, PESTICIDES), WASTES(INDUSTRIAL), WASTES(SANITARY ENGINEERING), WATER POLLUTION, INCINERATORS, FIRE SAFETY, CONTAMINATION, PUBLIC HEALTH (U)

AN INTERIM GUIDELINE FOR SURPLUS OR WASTE PESTICIDES AND PESTICIDE CONTAINER DISPOSAL HAS BEEN DRAWN FROM THE COMBINED IMPORTANT POINTS OF THREE WORKING GROUP REPORTS. PRESENTED IN CONCISE FORM FOR READY REFERENCE, THE SUBJECTS OF OCEAN DISPOSAL (NOT RECOMMENDED), GROUND DISPOSAL AND INCINERATION (AIR DISPOSAL) ARE REVIEWED. ORIENTATION IS TO DIFFERENT PESTICIDE USERS: HOUSEHOLDERS, FARM OPERATORS, COMMERCIAL OPERATORS, GOVERNMENTAL AUTHORITIES, INDUSTRIAL USERS, FORMULATORS, MANUFACTURERS. GROUND DISPOSAL, ITS ATTENDANT PRECAUTIONS AND CONTROLS, ARE DISCUSSED AS WELL AS METHODS AND DISPOSAL SITE REQUIREMENTS. INCINERATION TECHNOLOGY TO DATE IS OUTLINED AS THE MOST APPLICABLE METHOD OF DISPOSAL FOR LARGE AMOUNTS OF TOXIC WASTES AND UNUSABLE PESTICIDES. SECTIONS ON COLLECTION SYSTEMS AS PRACTICED AND RECOMMENDED IN VARIOUS AREAS INCLUDING TRANSPORTATION OF SURPLUS PESTICIDES AND CONTAINERS, STORAGE CONSIDERATIONS WITH FIRE AND SAFETY PRECAUTIONS, DISPOSAL SITE MONITORING AND SUGGESTED RESEARCH BRING THE WHOLE PROBLEM INTO FOCUS. THE SUMMARY OF GUIDELINES PROVIDES PRELIMINARY GUIDANCE WITH EXPECTATION OF REVISION WHEN MORE DEFINITIVE SOLUTIONS ARE AVAILABLE. (AUTHOR) (U)

40

AD-769 616 6/5 13/2
ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND WASHINGTON D C

ANNUAL RESEARCH PROGRESS REPORT 1 JULY 1972-30 JUNE 1973. (U)

JUL 73 54P SORBER,CHARLES A. I
PROJ: DA-3-A-062110-A-806; AD-3-A-762758-A-835

UNCLASSIFIED REPORT

DESCRIPTORS: (*PUBLIC HEALTH, *ENVIRONMENTS), (*POLLUTION, PUBLIC HEALTH), REPORTS, SCIENTIFIC RESEARCH, AIR POLLUTION, WATER POLLUTION, SOLID WASTES, WASTE MANAGEMENT, PESTICIDES, MICROORGANISMS, FIELD EQUIPMENT, TEST EQUIPMENT (U)

CONTENTS: ULTRASENSITIVE PROCEDURES FOR AMBIENT AIR QUALITY GASEOUS TRACERS; HEALTH AND WELFARE EFFECTS OF LOW-LEVEL AIR AND WATER POLLUTANTS; WATER POLLUTION SAMPLER EVALUATION; DETECTION OF ENTERIC VIRUSES IN WATER AND WASTEWATER AT NATURALLY OCCURRING LEVELS; WATER QUALITY ANALYSIS SET, PHASE II; EVALUATION OF EXISTING FIELD TEST KITS FOR DETERMINING FAC RESIDUALS IN AQUEOUS SOLUTIONS; EVALUATION OF HYGIENE AND WELFARE ASPECTS OF SOLID WASTE DISPOSAL PRACTICES; EVALUATION OF THE HEALTHE EFFECTS OF THE CHEMICAL DISPOSAL OF PESTICIDES AND PESTICIDE CONTAINERS; HEALTH AND HYGIENE ASPECTS OF LAND APPLICATION OF WASTEWATER AT MILITARY INSTALLATIONS; DEVELOPMENT AND EVALUATION OF CRITERIA FOR ADVANCED WASTEWATER TREATMENT PROCESSES. (U)

AD-797 602 13/2 6/6
ARMY MEDICAL ENVIRONMENTAL ENGINEERING RESEARCH UNIT
EDGEWOOD ARSENAL MD

PROBLEM DEFINITION STUDY: EVALUATION OF HEALTH AND HYGIENE EFFECTS OF THE DISPOSAL OF PESTICIDES AND PESTICIDE CONTAINERS. (U)

AUG 72 49P MILLER,THOMAS A. ;
REPT. NO. USAMEERU-73-01
PROJ: DA-3-A-062110-A-806

UNCLASSIFIED REPORT

DESCRIPTORS: (*PESTICIDES, DISPOSAL); (*ARMY, PEST CONTROL); DECONTAMINATION, INSECTICIDES, HERBICIDES, SANITARY ENGINEERING, PUBLIC HEALTH, COMBUSTION, DECOMPOSITION (U)
IDENTIFIERS: *WASTE DISPOSAL, *LIQUID WASTE DISPOSAL, BIODETERIORATION, EARTH FILLS (U)

THE DISPOSAL OF DEPARTMENT OF THE ARMY (DA) SURPLUS PESTICIDES OF ALL TYPES PRESENTS SERIOUS PROBLEMS. THE REPORT DESCRIBES A STUDY TO DETERMINE IF ADEQUATE, ENVIRONMENTALLY-SOUND METHODS FOR DISPOSAL EXIST. SIGNIFICANT AMONG THE VARIOUS TYPES OF PESTICIDES ARE LARGE QUANTITIES OF ORGANOCHLORINE INSECTICIDES AND PHENOXY ACID HERBICIDES. THERMAL DEGRADATION OR GROUND DEPOSITION ARE THE DISPOSAL METHODS WITH THE GREATEST POTENTIAL FOR HANDLING LARGE QUANTITIES OF MATERIAL IN THESE CATEGORIES. CHEMICAL TREATMENT HAS DISPOSAL FOR DECONTAMINATION OF EMPTY PESTICIDE CONTAINERS. RECOMMENDATIONS ARE MADE CONCERNING RESEARCH TO DETERMINE THE BEST METHODS OF DISPOSAL. (AUTHOR MODIFIED ABSTRACT) (U)

AD-752 124 7/3 13/2
ARMY MEDICAL ENVIRONMENTAL ENGINEERING RESEARCH UNIT
EDGEWOOD ARSENAL MD

METHODS OF CHEMICAL DEGRADATION OF PESTICIDES AND HERBICIDES - A REVIEW. (U)

OCT 72 36P HENNIS,WILLIAM H. ; JR.
REPT. NO. USAMEERU-73-04
PROJ: DA-3-A-062110-A-806
TASK: 3-A-062110-A-80600

UNCLASSIFIED REPORT

DESCRIPTORS: (*PESTICIDES, *DECOMPOSITION); (*HALOGENATED HYDROCARBONS, DECOMPOSITION); (*ORGANIC PHOSPHORUS COMPOUNDS, DECOMPOSITION); REVIEWS, INSECTICIDES, HERBICIDES, OXIDATION, HYDROLYSIS, PHOTOLYSIS, MOLECULAR STRUCTURE, CARBAMIC ACID, ETHERS, CHLORINE COMPOUNDS (U)
IDENTIFIERS: *WASTE DISPOSAL, *LIQUID WASTE DISPOSAL, BIODETERIORATION, *CARBAMATES, *CHLORINE ORGANIC COMPOUNDS, DECHLORINATION (U)

DEGRATION OF PESTICIDES, HERBICIDES AND STRUCTURALLY RELATED COMPOUNDS BY DECHLORINATION, PHOTOCHEMICAL REACTIONS, CLEAVAGE OF ETHERS, OXIDATION, BIODEGRADATION AND HYDROLYSIS ARE REVIEWED. DUE TO THE GREAT VARIATION IN CHEMICAL STRUCTURE, REACTIVITY AND SOLUBILITY, NO SINGLE METHOD OF CHEMICAL DEGRADATION IS PRESENTLY AVAILABLE. FOUR APPROACHES TO CHEMICAL DEGRADATION ARE PROPOSED FOR THE DETOXIFICATION OF THE ENTIRE SPECTRUM OF PESTICIDES AND HERBICIDES. THE METHODS PROPOSED ARE HYDROLYSIS, DECHLORINATION, PHOTOLYSIS AND OXIDATION. RECOMMENDATIONS ARE MADE FOR THE STUDY AND DEVELOPMENT OF THE PROPOSED DEGRADATIVE METHODS. (AUTHOR) (U)

AD-773 853 4/2 6/6
FLORIDA UNIV GAINESVILLE DEPT OF ENVIRONMENTAL ENGINEERING
SCIENCES

A TRACER STUDY OF METEOROLOGICAL INFLUENCE
ON THE DISPERSION OF GROUND-APPLIED
INSECTICIDE AEROSOLS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 200P SCHATMEYER,JOHN F. TURONE,
PAUL I
REPT. NO. APL-101
CONTRACT: DAAA17-72-C-2098

UNCLASSIFIED REPORT

DESCRIPTORS: *INSECTICIDES, *DISPERSING,
TURBULENCE, CULICIDAE, AEROSOLS, ATMOSPHERES,
TRANSPORT PROPERTIES, MONITORING, TEMPERATURE,
WIND, ATMOSPHERIC MOTION, EXPERIMENTAL DESIGN,
TEMPERATURE INVERSION, METEOROLOGICAL PHENOMENA,
SAMPLING, TRACER STUDIES (U)
IDENTIFIERS: *ATMOSPHERIC DIFFUSION PROCESSES,
MALATHION (U)

DISPERSION OF INSECTICIDE AEROSOLS WAS STUDIED AT A
RESIDENTIAL TEST SITE UNDER A VARIETY OF NOCTURNAL
CONDITIONS. FIVE PROGRAMMED SEQUENTIAL AEROSOL
SAMPLERS WERE USED TO CAPTURE FLUORESCENT PARTICLE
TRACED AEROSOL DROPLETS. MEASUREMENTS WERE
CONDUCTED AT GROUND AND ELEVATED LOCATIONS.
SIMULTANEOUS AND COINCIDENT BIOLOGICAL MEASUREMENTS
WERE PERFORMED WITH LIVE CAGED MOSQUITOS IN ORDER TO
ASSESS STANDARD RATE ULV (ULTRA-LOW VOLUME)
APPLICATIONS OF MALATHION INSECTICIDE.
METEOROLOGICAL MEASUREMENTS INCLUDED VERTICAL
TEMPERATURE AND WIND STRUCTURES, ATMOSPHERIC
TURBULENCE, NET RADIATION, AND REFERENCE WET AND DRY
BULB TEMPERATURES. (MODIFIED AUTHOR ABSTRACT) (U)

AD-770 403 6/20 6/6
ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GROUND
MD

HAZARD EVALUATION OF AEROSOL FORMULATIONS
CONTAINING THE SYNTHETIC PYRETHROID
INSECTICIDE (5-BENZYL-3-FURYL) METHYL-2,
2-DIMETHYL-3-(2-METHYLPROPENYL)
CYCLOPROPANECARBOXYLATE (SBP-1382TH). (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-JAN 73,
JAN 73 22P WEEKS,MAURICE IBOLDT,ROGER I
POPE,CONRAD R. I
REPT. NO. USAEHA-51-136-71/79

UNCLASSIFIED REPORT

DESCRIPTORS: *INSECTICIDES, *TOXICITY, *CARBOXYLIC
ACIDS, *AEROSOLS, SPECTRA(INFRARED),
BIOLOGICAL ASSAY, LABORATORY ANIMALS, EYE, SKIN,
IRRITATING AGENTS, PROPELLANTS, HALOGENATED
HYDROCARBONS, LUNGS, REPRODUCTION(PHYSIOLOGY),
INGESTION(PHYSIOLOGY), RESPIRATION, RATS (U)
IDENTIFIERS: *PYRETHRINS, *SBP 1382 INSECTICIDE,
CYCOPROPANE CARBOXYLIC ACIDS, AEROSOL SPRAYS (U)

INHALATION STUDIES WERE MADE USING RATS TO OBTAIN
INFORMATION ON THE POSSIBLE ADVERSE EFFECTS FORM
DAILY INTERMITTENT 5-DAY EXPOSURE TO AEROSOL SPRAYS
CONTAINING COMBINATIONS OF SBP-1382TH(DEODORIZED
KEROSENE (BAYOL 35)) AND PROPELLANTS (FREON 11
AND FREON 12). TOXICITY RELATED TO THE
INSECTICIDE, SBP-1382TH, WAS NOT OBSERVED IN
RODENTS EXPOSED TO AEROSOLS CONTAINING THE TECHNICAL
GRADE SBP-1382TH AND FREON 11 AND 12 AT A
CONCENTRATION OF 7.3 MG SBP-1382TH/1 OF AIR.
TRANSIENT TOXIC SIGNS WERE OBSERVED IN ANIMALS
EXPOSED TO AEROSOL PREPARATIONS CONTAINING BAYOL
35. NO PRENATAL TOXICITY WAS OBSERVED IN PREGNANT
RATS EXPOSED TO AEROSOL PREPARATIONS CONTAINING
SBP-1382TH. (AUTHOR) (U)

AD-729 929 13/2
EDGEWOOD ARSENAL MD

PROCEEDINGS OF MEETING ON ENVIRONMENTAL POLLUTION (2ND) 24-25 MARCH 1971. SPONSORED BY AMERICAN ORDNANCE ASSOCIATION. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION.
AUG 71 224P LOVE,SOLOMON I
REPT. NO. EA-SP-100-102

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, SYMPOSIA), (*WATER POLLUTION, SYMPOSIA), DEPARTMENT OF DEFENSE, MONITORS, RAMAN SPECTROSCOPY, MARYLAND, PENNSYLVANIA, URBAN AREAS, INCINERATORS, SCIENTIFIC RESEARCH, NUCLEAR POWER PLANTS, RADIOLOGICAL CONTAMINATION, ECOLOGY, DISPOSAL, WASTES(SANITARY ENGINEERING), PLASTICS, PESTICIDES (U)
IDENTIFIERS: AIR POLLUTION DETECTION, REMOTE SENSING, *SOLID WASTE DISPOSAL, *GOVERNMENT POLICIES, HAZARDOUS MATERIALS, TOXIC AGENT DECONTAMINATION, EAGLE PROJECT, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

THE TITLES OF THE REPORTS PRESENTED INCLUDE: THE JOINT ROLE OF DEPARTMENT OF DEFENSE AND INDUSTRY IN PROTECTING THE ENVIRONMENT; CHANGES IN FEDERAL ORGANIZATION FOR ENVIRONMENTAL CONTROL - CHANGES FLOWING FROM THE ESTABLISHMENT OF THE ENVIRONMENTAL PROTECTION AGENCY; THE AIR POLLUTION STORY IN ALLEGHENY COUNTY; 'CAN THE URBAN ENVIRONMENT BE MANAGED'; FEDERAL PROGRAM FOR AIR MONITORING TECHNOLOGY; M34 DEMILITARIZATION PROGRAM TASK FORCE EAGLE; DETECTION AND PROTECTION ASPECTS OF PROJECT EAGLE; CONSIDERATION IN REMOTE RAMAN SPECTROSCOPY; MARYLAND'S STATE AND LOCAL AIR QUALITY CONTROL AGENCIES 'ROUTINE COMPREHENSIVE AIR MONITORING SYSTEM'; PROBLEMS IN MEETING EMISSION STANDARDS; THE ENVIRONMENTAL PROTECTION AGENCY R AND D PROGRAM FOR WATER QUALITY CONTROL; NUCLEAR POWER AND THE ENVIRONMENT; EDGEWOOD ARSENAL'S TEST AREA ECOLOGY PROGRAM; SOLID WASTE DISPOSAL FROM THE STATE'S POINT OF VIEW; HANDLING AND INCINERATION OF PESTICIDES, PLASTICS, AND HAZARDOUS CHEMICALS; ADVANCED FLUID BED INCINERATOR. (U)

AD-885 403 13/2 6/6
INTER-COUNCIL WORKING PARTY

POLLUTION RESEARCH AND THE RESEARCH COUNCILS. (U)

MAR 71 31P

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, GREAT BRITAIN), (*WATER POLLUTION, GREAT BRITAIN), HAZARDS, ENVIRONMENT, RESEARCH MANAGEMENT, SCIENTIFIC RESEARCH, CLASSIFICATION, TABLES(DATA), COLLECTING METHODS, WASTES(INDUSTRIAL), WASTES(SANITARY ENGINEERING), HUMANS, MARINE BIOLOGY, TOXICITY, RADIOACTIVE CONTAMINATION, HERBICIDES, PUBLIC HEALTH, INDUSTRIAL PLANTS, NOISE, PESTICIDES (U)
IDENTIFIERS: HEAVY METALS, *POLLUTION RESEARCH (U)

THE RESEARCH COUNCILS HAVE BEEN PROMOTING RESEARCH ON POLLUTION FOR A NUMBER OF YEARS, AND ARE CONTINUOUSLY RE-SHAPING THEIR RESEARCH PROGRAMMES TO MEET NEW AND CHANGING DEMANDS. THE STUDY ON WHICH THIS REPORT IS BASED WAS UNDERTAKEN TO TAKE STOCK OF THE WHOLE RANGE OF THIS RESEARCH, AND TO IDENTIFY WAYS IN WHICH THE COMBINED RESOURCES OF ALL THE COUNCILS COULD BE MOBILISED TO COPE WITH THE PROBLEMS WHICH LIE AHEAD. (U)

AD-736 763 6/6
ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE MIAMI FLA

PESTICIDES IN THE LOWER ATMOSPHERE OF THE NORTHERN EQUATORIAL ATLANTIC OCEAN. (U)

APR 71 9P SEBA,U. B. (PROSPERO,J. M.)

REPT. NO. CONTRIB-1381
CONTRACT: NONR-4036(02), NSF-GA-25916

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ATMOSPHERIC ENVIRONMENT, VS P1093-1090 1971.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 2 NOV 70.

DESCRIPTORS: (*PESTICIDES, TROPOSPHERE), MEASUREMENT, ATMOSPHERES, WIND, TRANSPORT PROPERTIES, CONTAMINATION, MARINE METEOROLOGY, AEROSOLS, WEST INDIES (U)

TRADE WIND AEROSOLS IN THE GIANT PARTICLE SIZE RANGE WERE COLLECTED CONTINUOUSLY AT BARBADOS, WEST INDIES, FROM 22 NOVEMBER TO 9 DECEMBER, 1968. THERE IS NO CORRELATION BETWEEN THE AIR CONCENTRATION OF THESE PESTICIDES AND THAT OF AIRBORNE DUST WHICH IS BELIEVED TO BE DERIVED FROM ARID REGIONS OF WEST AFRICA; EVIDENCE SUGGESTS THAT THE PESTICIDES ORIGINATED FROM THE HIGHER LATITUDES, EITHER EUROPE OR NORTH AMERICA. THE POSSIBLE IMPORTANCE OF THE WIND-TRANSPORT OF PESTICIDES TO REMOTE MARINE ENVIRONMENTS IS DISCUSSED. (AUTHOR) (U)

AD-762 899 7/3 14/2
LOUISIANA STATE UNIV BATON ROUGE DEPT OF CHEMISTRY

PIEZOELECTRIC DETECTORS FOR ORGANOPHOSPHORUS COMPOUNDS AND PESTICIDES. (U)

APR 72 7P SCHEIDE,EUGENE P. ; GUILBAULT,GEORGE G. ;
CONTRACT: DA-ARO-D-31-124-70-G69
MONITOR: AROD 6969-10-C

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ANALYTICAL CHEMISTRY, V44 N11 P1769-1768 SEP 72.
SUPPLEMENTARY NOTE: SPONSORED IN PART BY PUBLIC HEALTH SERVICE. REVISION OF REPORT DATED 12 JAN 72.

DESCRIPTORS: (*ORGANIC PHOSPHORUS COMPOUNDS, *GAS ANALYSIS), (*PIEZOELECTRIC CRYSTALS, *GAS DETECTORS), ADSORPTION, PESTICIDES, AIR POLLUTION, QUARTZ, GAS CHROMATOGRAPHY, DESIGN, LABORATORY EQUIPMENT, IRON COMPOUNDS, COATINGS, CHEMISORPTION (U)
IDENTIFIERS: PERFORMANCE EVALUATION, IRON CHLORIDES (U)

A QUARTZ PIEZOELECTRIC CRYSTAL COATED WITH A SUBSTRATE HAS BEEN USED FOR THE DETECTION OF SMALL MASS CHANGES CAUSED BY THE SELECTIVE ADSORPTION OF ORGANOPHOSPHORUS COMPOUNDS AND PESTICIDES. INCORPORATION OF THE CRYSTAL INTO A VARIABLE OSCILLATOR CIRCUIT AND MEASUREMENT OF THE CHANGE IN FREQUENCY OF THE CRYSTAL DUE TO THE INCREASE IN MASS ALLOWS A HIGHLY SENSITIVE INDICATION OF THE AMOUNT OF ORGANOPHOSPHORUS COMPOUND PRESENT IN THE ATMOSPHERE DOWN TO THE PART PER MILLION LEVEL. AT CUT QUARTZ CRYSTALS WITH FUNDAMENTAL FREQUENCIES OF 9.0 MHZ WERE COATED WITH VARIOUS INORGANIC SUBSTRATES AND THESE WERE EVALUATED AS TO SELECTIVITY AND SENSITIVITY WITH RESPECT TO ORGANOPHOSPHORUS POLLUTANTS. OTHER PARAMETERS THAT AFFECT THE EFFICIENCY OF THE DETECTOR WERE ALSO STUDIED AND EVALUATED. THE DETECTOR HAS POTENTIAL USE AS BOTH AN AIR POLLUTION SENSOR AND A SPECIFIC GAS CHROMATOGRAPHY DETECTOR. (MODIFIED AUTHOR ABSTRACT) (U)

AIR POLLUTION
Chemistry and Physics
Air Quality

AD-729 913 13/2
CALIFORNIA UNIV BERKELEY OPERATIONS RESEARCH CENTER

AVERAGING TIME AND MAXIMA FOR AIR POLUTION CONCENTRATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
JUL 71 21P BARLOW,RICHARD E. ;
REPT. NO. ORC-71-17
CONTRACT: N00014-69-A-0200-1036, NSF-GP-29123

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY GRANT NSF-GP-23153.

DESCRIPTORS: (*AIR POLLUTION, *DISTRIBUTION FUNCTIONS), STATISTICAL ANALYSIS, CONCENTRATION(CHEMISTRY), MATHEMATICAL ANALYSIS, THEORY, PARTICLES (U)
IDENTIFIERS: ARITHMETIC MEAN, AVERAGE (U)

FOR PURPOSES OF EVALUATING AIR QUALITY, IT IS IMPORTANT TO KNOW THE PROBABILITY THAT MAXIMUM POLLUTANT CONCENTRATIONS WILL EXCEED STATE STANDARDS STATED FOR VARIOUS AVERAGING TIMES. EXTREME VALUE THEORY TO DETERMINE THE LIMITING DISTRIBUTION OF MAXIMUM AIR POLLUTANT CONCENTRATIONS AS A FUNCTION OF AVERAGING TIME. BOUNDS ON THE LOCATION PARAMETER OF THE CORRESPONDING EXTREME VALUE DISTRIBUTION ARE USED TO EVALUATE AIR QUALITY. IN PARTICULAR, THESE BOUNDS ARE USED TO EVALUATE SUSPENDED PARTICULATE DATA. (AUTHOR) (U)

AD-908 396 13/2 4/2
ATMOSPHERIC ENVIRONMENT SERVICE DOWNSVIEW (ONTARIO)

THE OPTIMUM NUMBER OF SAMPLING STATIONS AND THE SAMPLING FREQUENCY FOR SURVEYING URBAN AIR POLLUTION, (U)

73 15P GOROSHKO,B. B. ;
REPT. NO. METEOROLOGICAL TRANS-20

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: TRANS. OF TRUDY GGO (USSR) N249 P140-150 1971. BY A. NURKLIK.

DESCRIPTORS: (*AIR POLLUTION, URBAN AREAS), (*AIR SAMPLING), AREA COVERAGE, DIURNAL VARIATIONS, INDUSTRIAL PLANTS, CARBON MONOXIDE, CONCENTRATION(CHEMISTRY), WASTE GASES, WIND, ATMOSPHERIC TEMPERATURE, CLOUD COVER, NETWORKS, STATISTICAL ANALYSIS, OPTIMIZATION, USSR, EXPERIMENTAL DATA, SULFUR, NITROGEN COMPOUNDS, PEROXIDES, PHENOLS (U)
IDENTIFIERS: NITROGEN OXIDE(NO2), TRANSLATIONS (U)

THE PRINCIPLES OF ORGANIZING A SAMPLING NETWORK UNDER THE PLUME OF A SINGLE POLLUTION SOURCE ARE OUTLINED ON THE BASIS OF THE RESULTS OF PROCESSING EXPERIMENTAL DATA AND ON THE BASIS OF CONCLUSIONS OBTAINED IN EARLIER STUDIES. IT IS SHOWN THAT POLLUTANT SAMPLING AND METEOROLOGICAL OBSERVATIONS HAVE TO BE CARRIED OUT AT HOURLY INTERVALS DURING THE DAYLIGHT PERIOD. THE PECULIARITIES OF THE SPREAD OF HARMFUL POLLUTANTS OVER A CITY AREA ARE EXAMINED. THE RESULTS OF PROCESSING OF EXPERIMENTAL DATA INDICATE THAT IN ORDER TO DETERMINE THE AIR QUALITY OF A CITY AREA WITH THE ACCURACY AVAILABLE AT PRESENT, IT IS ENOUGH TO HAVE A SAMPLING STATION FOR EACH 10-20 SQ KM AREA UNDER FLAT TERRAIN CONDITIONS AND FOR EACH 5-10 SQ KM AREA UNDER BROKEN TERRAIN CONDITIONS. BY KEEPING A SAMPLING TIME GRAPH, DATA CAN BE OBTAINED THAT CHARACTERIZE SUFFICIENTLY THE AIR POLLUTION LEVEL OVER THE AREA OF A CITY. (AUTHOR) (U)

AD-779 166 13/2
OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)

SURVEY OF METHODS OF OBSERVATION AND MEASUREMENT OF ATMOSPHERIC POLLUTION. (U)

DESCRIPTIVE NOTE: CONFERENCE REPT.,
DEC 73 36P MASON,DAVID H. ;
REPT. NO. ONRL-C-27-73

UNCLASSIFIED REPORT

DESCRIPTORS: *MEETINGS, GAS ANALYSIS, AEROSOLS, AIR POLLUTION, FINLAND (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, ATMOSPHERIC COMPOSITION (U)

THE REPORT BRIEFLY SUMMARIZES HIGHLIGHTS OF A TECHNICAL CONFERENCE ON THE OBSERVATION AND MEASUREMENT OF ATMOSPHERIC POLLUTION HELD IN HELSINKI IN THE SUMMER OF 1973. AN APPENDIX INCLUDES A CONDENSED PROGRAM WITH TOPICS, SPEAKERS, AND AFFILIATIONS. (U)

AD-920 581 9/2 4/1 13/2
ATMOSPHERIC ENVIRONMENT SERVICE DOWNSVIEW (ONTARIO)

METEOROLOGICAL TRANSLATIONS NO. 23. (U)

73 74P

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: TRANS. OF GERMAN AND RUSSIAN ARTICLES ON AIR CHEMISTRY AND AIR POLLUTION, BY A. NURKLIK.

DESCRIPTORS: (*ATMOSPHERIC CIRCULATION, *ATMOSPHERIC CHEMISTRY), (*AIR POLLUTION, URBAN AREAS), METEOROLOGY, COMPUTATIONS, CLIMATE, GLOBAL, NITROGEN, DIOXIDES, CARBON MONOXIDE, AIR QUALITY, DETERMINATION, CONCENTRATION(CHEMISTRY), STATISTICAL DISTRIBUTIONS, ESTIMATES, AEROSOLS, TRACE GASES, SULFUR, DUST, CARBON DIOXIDE, ATMOSPHERIC TEMPERATURE, THERMAL RADIATION, TROPOSPHERE, STRATOSPHERE, WIND VELOCITY, WEATHER MODIFICATION, DEGRADATION, POLLUTANTS, USSR, EAST GERMANY, TRANSLATIONS, WEST GERMANY, CANADA (U)

CONTENTS: CIRCULATION OF MATTER IN THE ATMOSPHERE; CITIES AND THE GLOBAL CLIMATE; METHODS FOR COMPUTING AIR QUALITY; EFFECTS OF METEOROLOGICAL CONDITIONS ON AIR POLLUTION IN CITIES OF THE SOVIET UNION. (U)

AD-836 883 9/1
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

INFRARED ABSORPTION SPECTRA OF ATMOSPHERIC DUST. (U)

MAY 68 40P BLANCO,ABEL J. ;HOIDALE, GLENN B. ;
PROJ: DA-1T014501B53A
TASK: 1T014501B53A-13
MONITOR: ECOM 5193

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERES, DUST); (*DUST, *INFRARED SPECTRA); ABSORPTION, SILICATES, CARBONATES, NITRATES, SOILS, INFRARED SPECTROPHOTOMETERS (U)
IDENTIFIERS: GRAPHS(CHARTS) (U)

BASED ON THE MICROSPECTROPHOTOMETRIC ANALYSIS OF 267 ATMOSPHERIC DUST SAMPLES TAKEN WITHIN THE SURFACE BOUNDARY LAYER OVER WHITE SANDS MISSILE RANGE, NEW MEXICO, FROM MAY 1966 THROUGH OCTOBER 1967, A REPRESENTATIVE INFRARED ABSORPTION SPECTRUM SPANNING THE WAVENUMBER RANGE FROM 4000 TO 250/CM IS PRESENTED. THE STRONGEST ABSORPTION BAND IS CENTERED AT 1027/CM, WITHIN THE 1250 TO 770/CM ATMOSPHERIC WINDOW, AND IS SILICATE INDUCED. TWO OTHER STRONG BROAD ABSORPTION BANDS ARE THE CARBONATE BAND AT 1426/CM AND THE SILICATE BAND AT 465/CM. TEMPORAL VARIATIONS IN THE ABSORPTION SPECTRA OF THE DUST ARE OBSERVED PRIMARILY IN THE VARYING RELATIVE INTENSITIES OF THE 1027 AND 1426/CM ABSORPTION BANDS AND IN THE OCCASIONAL ENHANCEMENT OF THE 1027/CM BAND CAUSED BY SULFATES IN THE DUST. THIS STUDY INDICATES A CLOSE SIMILARITY BETWEEN THE ABSORPTION SPECTRA OF THE ATMOSPHERIC DUST AND THE ABSORPTION SPECTRA OF THE SMALL PARTICLE FRACTION OF AREA SOILS, AND BETWEEN THE REPRESENTATIVE DUST SPECTRUM AND A SPECTRUM OF A SYNTHETIC MIXTURE (BY WEIGHT) OF 80% SILICATES, 16% CARBONATES, AND 4% NITRATES. (AUTHOR) (U)

AD-773 824 9/1
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

AN ANALYSIS OF RANDOM FLUCTUATIONS OF ATMOSPHERIC DUST CONCENTRATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
JAN 74 21P HENLEY,DAVID C. ;
REPT. NO. ECOM-5630
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-18

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST, CONCENTRATION(COMPOSITION), TIME SERIES ANALYSIS, NEW MEXICO (U)

A MODIFIED STRUCTURE FUNCTION ANALYSIS IS DEVELOPED FOR AND APPLIED TO TIME SERIES DATA ON THE NUMBER CONCENTRATION OF ATMOSPHERIC DUST PARTICLES. PRELIMINARY INDICATIONS ARE THAT THIS APPLICATION IS A USEFUL METHOD OF ANALYSIS. SYSTEMATIC RELATIONSHIPS OF EVENTS MANIFESTED BY THE DATA ARE EMPHASIZED IN A WAY WHICH IS POTENTIALLY USEFUL FOR THE INVESTIGATION OF THE CAUSES OF SUCH RELATIONSHIPS. (AUTHOR) (U)

AD-772 701 9/1
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

A MEASUREMENT OF THE ABSORPTION COEFFICIENT OF ATMOSPHERIC DUST. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 73 18P LINDBERG,JAMES D. (LAUDE, LARRY S.)
REPT. NO. ECOM-5525
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-19

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST, *ABSORPTION SPECTRA, LIGHT SCATTERING, ATTENUATION, ULTRAVIOLET SPECTRA, VISIBLE SPECTRA, INFRARED SPECTRA, ATMOSPHERIC REFRACTION, NEW MEXICO (U)
IDENTIFIERS: ATMOSPHERIC ATTENUATION (U)

A METHOD DEVELOPED BY PREVIOUS WORKERS FOR MEASURING THE ABSORPTION COEFFICIENT OF STRONGLY ABSORBING POWDERED MATERIALS HAS BEEN APPLIED TO SAMPLES OF ATMOSPHERIC DUST IN THE 0.3 TO 1.1 MICROMETERS WAVELENGTH INTERVAL. THIS WORK, WHICH IS BASED ON THE KUBELKE-MUNK THEORY OF DIFFUSE REFLECTANCE, PROVIDES AN ESTIMATE OF THE OPTICAL ABSORPTION COEFFICIENT. THE CORRESPONDING IMAGINARY REFRACTIVE INDEX IS CALCULATED FROM THIS VALUE. RESULTS ARE GIVEN FOR SEVERAL SAMPLES OF DRY ATMOSPHERIC DUST COLLECTED IN THE DESERT OF SOUTHERN NEW MEXICO. (MODIFIED AUTHOR ABSTRACT) (U)

AD-772 960 9/1
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

ESTIMATES OF THE EXTINCTION OF ELECTROMAGNETIC ENERGY IN THE 8 TO 12 MICROMETER RANGE BY NATURAL ATMOSPHERIC PARTICULATE MATTER. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
JAN 74 32P LENTZ,W. J. (HOIDALE,G. B.)
PROJ: DA-1-T-061102-B-53-A-18
MONITOR: ECOM 5528

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST, ABSORPTION SPECTRA, INFRARED SPECTRA, FAR INFRARED RADIATION, NEW MEXICO (U)
IDENTIFIERS: ATMOSPHERIC ATTENUATION (U)

EXTINCTION COEFFICIENTS, BASED ON ATMOSPHERIC DUST SAMPLED OVER SOUTHERN NEW MEXICO, ARE TABULATED AT 0.2 MICROMETER INTERVALS FROM 8.0 TO 12.0 MICROMETERS FOR MASS CONCENTRATIONS OF 1000, 100, AND 10 MICROGRAM/CUBIC METER. AT A CONCENTRATION OF 1000 MICROGRAM/CUBIC METER, THE PEAK EXTINCTION OF ABOUT 0.1/KM OCCURS AT 9.6 MICROMETERS. THE METHOD EMPLOYED USES MIE THEORY TO EXTRAPOLATE THE MEASURED EXTINCTION OF A SUSPENSION OF DUST IN POTASSIUM BROMIDE TO THE EXTINCTION OF THE DUST SUSPENDED IN AIR. OVER THE MIDDLE EAST AND NORTH AFRICA IT IS ESTIMATED THAT CONCENTRATIONS OF 1000 MICROGRAM/CUBIC METER AND GREATER OCCUR ON AN AVERAGE OF 50 TO 150 DAYS PER YEAR. (AUTHOR) (U)

AD-607 089
FRANKFURT UNIV (WEST GERMANY)

INVESTIGATIONS ON TROPOSPHERIC WASH-OUT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 64 68P GEORGII,HANS-WALTER (WEBER,
ERICH)
CONTRACT: AF61 052 249
MONITOR: AFCRL , 64 816

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TROPOSPHERE, AIR POLLUTION), (•AIR POLLUTION, ATMOSPHERIC PRECIPITATION), (•ATMOSPHERIC PRECIPITATION, AIR POLLUTION), ATMOSPHERES, TRANSPORT PROPERTIES, WASTE GASES, DUST, AEROSOLS, METEOROLOGICAL PHENOMENA, CHEMICAL ANALYSIS (U)

THIS REPORT SUMMARIZES THE RESULTS OF CHEMICAL ANALYSES OF INDIVIDUAL CASES OF PRECIPITATION SAMPLED AT DIFFERENT LOCATIONS. THE LOCATIONS SHOWED A GREAT VARIETY WITH RESPECT TO ALTITUDE, CLIMATE AND LEVEL OF INDUSTRIAL AND ANTHROPOGENEOUS POLLUTION. FURTHERMORE DETAILED ANALYSES AND CONTINUOUS RECORDS OF THE TRACE-SUBSTANCE CONCENTRATION DURING INDIVIDUAL RAINFALLS ARE DISCUSSED. THE VARIATIONS OF THE CONCENTRATION DURING THE COURSE OF THE RAIN AND THEIR RELATIONS TO QUANTITY, INTENSITY AND TYPES OF RAIN AS WELL AS TO METEOROLOGICAL PARAMETERS, ARE DISCUSSED. FINALLY, PRELIMINARY STUDIES ON THE INCORPORATION OF TRACE-SUBSTANCES INTO CLOUD- AND RAIN-DROPS ARE PRESENTED, INDICATING THE RELATIVE IMPORTANCE OF RAINOUT COMPARED TO WASHOUT.
(AUTHOR) (U)

AD-757 494 9/1 20/6
RADIATION RESEARCH ASSOCIATES INC FORT WORTH TEX

MONTE CARLO STUDIES OF LIGHT TRANSPORT THROUGH NATURAL ATMOSPHERES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB 70-31 DEC 72,
JAN 73 105P BLATTNER,WOLFRAM (WELLS,
MICHAEL B.)
REPT. NO. RRA-T7304
CONTRACT: F19628-70-C-0156
PROJ: AF-7621
TASK: 762106
MONITOR: AFCRL TR-73-0109

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, •LIGHT TRANSMISSION), SCATTERING, MONTE CARLO METHOD, FOG, VISIBILITY, AEROSOLS, DUST, REFRACTIVE INDEX, TWILIGHT (U)
IDENTIFIERS: LIGHT SCATTERING, MIE SCATTERING, ATMOSPHERIC SCATTERING (U)

THE REPORT DESCRIBES WORK PERFORMED ON SIX MAJOR WORK AREAS: MODIFICATION TO THE FLASH PROCEDURE AND ITS APPLICATION TO SOLAR ALMUCANTAR, HORIZON BRIGHTNESS, AND TWILIGHT SCATTERING STUDIES; DEVELOPMENT OF THE BRITE PROCEDURE FOR TREATING LIGHT SCATTERING IN A PLANE PARALLEL ATMOSPHERE WITH THE BACKWARD MONTE CARLO METHOD. APPLICATION OF THE FLARE PROCEDURE TO EVALUATE THE EFFECT OF MULTIPLE SCATTERING ON THE ANGULAR INTENSITY REACHING A RECEIVER FROM A POINT ISOTROPIC SOURCE; MODIFICATIONS OF THE LITE-IV PROCEDURE FOR USE IN PATH RADIANCE AND PATH REFLECTANCE CALCULATIONS; APPLICATIONS OF THE TPART-I PROCEDURE TO STUDIES OF RADIATION TRANSPORT IN FOGGY ATMOSPHERES FOR USE IN DETERMINING THE EFFECTS OF SCATTERING ON VISIBILITY MEASUREMENTS MADE WITH OPTICAL TRANSMISSION INSTRUMENTS; AND, MODIFICATIONS TO THE MIE2 PROCEDURE AND DEVELOPMENT OF THE MIE3, MIE4, AND MIE5 PROCEDURES FOR CALCULATING SCATTERING CROSS SECTIONS AND PHASE FUNCTION DATA FOR HOMOGENEOUS SPHERICAL PARTICLES AND FOR PARTICLES HAVING A SPHERICAL SHELL OF DIFFERENT MATERIALS, AND THE APPLICATION OF THESE PROGRAMS TO CALCULATIONS OF SCATTERING DATA FOR VISIBLE AND INFRARED LIGHT.
(AUTHOR MODIFIED ABSTRACT) (U)

AD-703 172 13/2 7/4
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE PROBLEM OF THE SETTLING OF AN ARTIFICIAL AEROSOL CLOUD IN THE ATMOSPHERE. (U)

NOV 69 17P MIROSHKINA,A. N. (PETROVA, G. M.)

REPT. NO. FTD-HT-24-302-69
PROJ: FTD-6030201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF INSTITUT PRIKLADNOI GEOFIZIKI, LENINGRAD. TRUDY (USSR) N9 P91-97 1967.

DESCRIPTORS: (*AIR POLLUTION, AEROSOLS); (*AEROSOLS, SCATTERING), INTERACTIONS, LUMINESCENCE, ATMOSPHERES, ACRYLIC RESINS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

AN ANALYSIS IS MADE OF DATA OBTAINED TO DETERMINE THE RATE OF SETTLING, THE MOVEMENT ALONG TRAJECTORIES AND THE POSITIONS, EXTENT, AND DISTANCE FROM THE SOURCE OF SURFACE CONCENTRATION MAXIMA OF ARTIFICIAL AEROSOL CLOUDS. THE AEROSOL USED CONSISTED OF LUMINESCENT PARTICLES OF POLYMETHYLMETHACRYLATE RELEASED INTO THE ATMOSPHERE AT VARIOUS SPEEDS AND IN VARIOUS WEATHER CONDITIONS. ANALYSIS OF THESE DATA INDICATES THE FOLLOWING: FOR FINELY DISPERSED PARTICLES, INTRODUCED INTO THE ATMOSPHERE IN SMALL CONCENTRATIONS OR UNDER EXPERIMENTAL CONDITIONS IN WHICH THE INITIAL INTERACTION OF THE PARTICLES WITH THE ATMOSPHERE CEASES ALMOST IMMEDIATELY, THE SURFACE FALLOUT CONCENTRATION IS MAXIMUM AT A DISTANCE FROM THE SOURCE AND DEPENDS ON THE VERTICAL COEFFICIENT OF PARTICLE DISPERSION, WHEN THE INITIAL VOLUME OF PARTICLES DISCHARGED IS LARGE, ESPECIALLY THOSE DISPERSED FROM AIRCRAFT INTO AN UNSTABLY STRATIFIED ATMOSPHERE, THE SURFACE CONCENTRATION MAXIMUM IS MUCH CLOSER. IF THE AEROSOL CLOUD SETTLES FAST ENOUGH, A SECOND SURFACE CONCENTRATION MAXIMUM DOES NOT OCCUR. (AUTHOR) (U)

AD-799 397 9/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

INFRARED REFRACTIVE INDEX OF ATMOSPHERIC AEROSOL SUBSTANCES. (U)

DEC 71 6P VOLZ,FREDERIC E. I

REPT. NO. AFCRL-72-0300
PROJ: AF-7621
TASK: 762110

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED OPTICS, V11 N4 P755-759 APR 72.

DESCRIPTORS: (*AEROSOLS, REFRACTIVE INDEX), AIR POLLUTION, ATMOSPHERES, ABSORPTION SPECTRA, INFRARED SPECTRA, PARTICLES, SULFATES (U)
IDENTIFIERS: ABSORPTIVITY (U)

THE OPTICAL CONSTANTS IN THE IR FROM 2.5 MICROMETERS TO 40 MICROMETERS (4000-250/CM) OF DRY NATURAL AEROSOL SUBSTANCES AND OF SEA SALT ARE PRESENTED. THE AEROSOL SUBSTANCES WERE OBTAINED FROM RAIN AND SNOW WATER; DUST AND SOOT BY SEDIMENTATION, AND WATER SOLUBLE SALTS BY EVAPORATION. THE SPECTRA OF THE ABSORPTION INDEX N'' WERE DERIVED FROM TRANSMITTANCE MEASUREMENTS OF POTASSIUM BROMIDE DISKS. THE REAL PART N OF THE REFRACTIVE INDEX WAS CALCULATED FROM THE SPECULAR REFLECTANCE AT NEAR NORMAL INCIDENCE OF DISKS OF PURE AEROSOL SUBSTANCE. THE OBSERVED SPECTRAL FEATURES ARE RELATED TO CHEMICAL CONSTITUENTS, NOTABLY SULFATES AND ALCOHOL SOLUBLE ORGANICS. OPTICAL CONSTANTS OF COMPOSITE AND WET AEROSOL ARE DISCUSSED. A SIMPLE MODEL CONFIRMS THE MEASURED TRANSMISSION OF A COARSE DRY POWDER OF WATER SOLUBLES. (AUTHOR) (U)

AD-687 502 4/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D C

INERTIAL MECHANISM OF SETTLING OF COARSELY DISPERSED AEROSOL ON TERRESTRIAL VEGETATION. (U)

68 17P DUSKII,V. F. I

REPT. NO. FSTC-HT-23-627-68
PROJ: FSTC-0603023C. FSTC-922362202

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY ATMOSFERNOI DIFFUZII I ZAGRYAZNENIYA (PROBLEMS OF ATMOSPHERIC DIFFUSION AND AIR POLLUTION). PUB. IN GLAVNAYA GEOFIZICHESKAYA OBSERVATORIYA. LENINGRAD. TRUDY (USSR) N172 P183-191 1966.

DESCRIPTORS: (*AEROSOLS. DEPOSITION); (*PLANTS(BOTANY). CONTAMINATION). (*AIR POLLUTION. AEROSOLS). MATHEMATICAL PREDICTION. TEST METHODS. LIQUIDS. SCATTERING. DIFFUSION. PARTICLE SIZE. DENSITY. ATMOSPHERES. ANALYSIS. USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE DOCUMENT PRESENTS AN ANALYSIS OF EXPERIMENTAL DATA ON THE SCATTERING OF DROPS OF LIQUID IN THE ATMOSPHERE IS USED AS THE BASIS FOR DEMONSTRATING THE NECESSITY OF CONSIDERING THE INERTIAL SETTLING OF AEROSOLS ON TERRESTRIAL VEGETATION. A METHOD IS PROPOSED FOR ESTIMATING THE INERTIAL SETTLING IN A STUDY OF THE ATMOSPHERIC DIFFUSION OF COARSELY DISPERSED AEROSOLS. (AUTHOR) (U)

AD-685 851 4/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

THE ATMOSPHERIC AEROSOL. (U)

MAR 69 51P DUFOUR,L. I
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-18

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF UNIDENTIFIED MONO., BY GLENN B. HOIDALE.

DESCRIPTORS: (*METEOROLOGICAL PHENOMENA. AEROSOLS). ATMOSPHERIC CONDENSATION. AIR POLLUTION. NUCLEI. PARTICLES. PARTICLE SIZE. HUMIDITY. SAMPLING. CHEMICAL PROPERTIES. BROWNIAN MOTION. ICE FOG. DUST. SAND. COMBUSTION PRODUCTS (U)
IDENTIFIERS: AEROSOLS. ATMOSPHERIC PRECIPITATION. TRANSLATIONS (U)

THE AUTHOR DISCUSSES VARIOUS AEROSOLS PRESENT IN THE ATMOSPHERE. THEIR FORMULATION. THEIR PHYSICAL PROPERTIES. DISTRIBUTION AND VOLUME CONCENTRATION. (U)

AD-646 966 9/1
STANFORD RESEARCH INST MENLO PARK CALIF

STUDIES OF THE CHEMISTRY OF UNPOLLUTED ATMOSPHERES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 66 114P JUNGE,CHRISTIAN E. I
CONTRACT: CWB-11151
PROJ: SRI-PAU-5644

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH MAINZ UNIV. (WEST GERMANY).

DESCRIPTORS: (*ATMOSPHERES, CHEMICAL PROPERTIES), (*TROPOSPHERE, *AEROSOLS), PARTICLE SIZE, DISTRIBUTION, CHLORIDES, SULFUR, SEA WATER, SPRAYS, PACIFIC OCEAN, ALTITUDE, SAMPLERS, CHEMICAL ANALYSIS, WEST GERMANY (U)

MEASUREMENTS OF AEROSOL CONCENTRATION AND SIZE DISTRIBUTION WERE MADE WITH A LIGHT SCATTERING TYPE PARTICLE COUNTER AND CONDENSATION NUCLEI COUNTERS AT SEA LEVEL AND 2200 METER ALTITUDES USING SITES AT CAPE BLANCO, AND CRATER LAKE, OREGON. THE DATA COLLECTED IN MARINE AIR MASSES SUPPORT EARLIER FINDINGS OF SEA-SPRAY AEROSOL SIZE DISTRIBUTIONS AND LACK OF CHEMICAL FRACTIONATION DURING BUBBLE BURST AEROSOL FORMATION. THE DATA INDICATE THAT SIGNIFICANT AMOUNTS OF SEA SPRAY AEROSOL DO NOT PENETRATE TO LOW AND MID-TROPOSPHERIC ALTITUDES ABOVE 2000 METERS. THE AEROSOLS TYPICAL OF THIS ELEVATION WERE FOUND TO HAVE SIZE DISTRIBUTIONS WELL APPROXIMATED BY A POWER LAW WITH AN EXPONENT OF 3 TO 4. THEY WERE FOUND TO HAVE SULFUR TO CHLORIDE RATIOS OF ABOUT 8 AND CONSIDERABLE CONCENTRATIONS OF SUBSTANCES OTHER THAN SULFUR AND CHLORIDE. HIGH ALTITUDE TROPOSPHERIC AIR MASS AEROSOLS, OBSERVED ON THIS PROGRAM AT CRATER LAKE DURING PERIODS OF SUBSIDENCE, HAVE LOWER CONCENTRATIONS THAN FOUND FOR LOWER ALTITUDE TROPOSPHERIC AEROSOLS AND THEIR POWER LAW REPRESENTATIONS ARE CHARACTERIZED BY LOWER EXPONENTIAL VALUES. (AUTHOR)

AD-681 122 9/1 20/4
RADIATION RESEARCH ASSOCIATES INC FORT WORTH TEX

COMPARISON OF ATMOSPHERIC PATH RADIANCE CALCULATIONS FOR MODEL CLEAR AND HAZY ATMOSPHERES. (U)

JUN 68 36P COLLINS,DAVE G. IWELLS, MICHAEL B. I
REPT. NO. SCIENTIFIC-5, RRA-T89
CONTRACT: F19628-67-C-0298
PROJ: AF-7621
TASK: 762107
MONITOR: AFCRL 68-0480

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERE MODELS, *LIGHT TRANSMISSION), VISIBILITY, POLARIZATION, HAZE, AEROSOLS, SCATTERING, MONTE CARLO METHOD, REFLECTION, ALBEDO, PARTICLE SIZE, DISTRIBUTION, INTENSITY, MONOCHROMATIC LIGHT (U)

THE LITE-IV MONTE CARLO PROGRAM WAS USED TO CALCULATE GROUND REFLECTANCES AND PATH RADIANCES AS A FUNCTION OF ALTITUDE AND DIRECTION FOR A MODEL ATMOSPHERE WITH A HAZE LAYER BETWEEN THE GROUND AND AN ALTITUDE OF 3 KM. BROAD BEAM MONODIRECTIONAL MONOCHROMATIC LIGHT SOURCES RANGING IN WAVELENGTH FROM 0.35 TO 0.95 MICRONS WERE ASSUMED INCIDENT TO THE MODEL ATMOSPHERE AT ZENITH ANGLES RANGING FROM 0 TO 87.5 DEGREES. THE ATMOSPHERE WAS ASSUMED TO BE BOUNDED ON THE LOWER SURFACE BY A LAMBERT TYPE REFLECTION SURFACE HAVING AN ALBEDO RANGING FROM 0.0 TO 0.9. THE HAZE LAYER WAS DEFINED BY ADDING AEROSOLS BELOW THREE KM ALTITUDES TO A MODEL CLEAR ATMOSPHERE SO THAT THE GROUND LEVEL METEOROLOGICAL RANGE WAS REDUCED FROM 25 TO 5 KM. SEVERAL COMPARISONS OF THE CALCULATED GROUND REFLECTANCES AND PATH RADIANCES FOR THE MODEL HAZY ATMOSPHERE ARE MADE WITH PREVIOUSLY REPORTED DATA FOR A MODEL CLEAR ATMOSPHERE ILLUSTRATING SOME OF THE EFFECTS OF ADDING A HAZE LAYER TO THE ATMOSPHERE.

AD-783 828 13/2 21/5 15/7
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB OHIO

AIRCRAFT EXHAUST POLLUTION AND ITS EFFECT ON THE U.S. AIR FORCE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 74 134P BLAZOWSKI,WILLIAM S. ;
HENDERSON,ROBERT E. ;
REPT. NO. AFAPL-TR-74-64

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED NOV 72, AD-753 096.

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT ENGINES, *AIR FORCE, REVIEWS, MILITARY REQUIREMENTS, COMBUSTION CHAMBERS, AFTERBURNING, EXHAUST GASES, COSTS, SMOKE, NITROGEN OXIDES, HYDROCARBONS, CARBON MONOXIDE (U)
IDENTIFIERS: *AIRCRAFT EXHAUST, *AIR POLLUTION CONTROL, AIR POLLUTION STANDARDS, JET ENGINE EXHAUST (U)

THE REPORT PRESENTS INFORMATION THOUGHT TO BE NECESSARY IN ESTABLISHING AN AIR FORCE POLICY ON AIRCRAFT ENGINE POLLUTION. THE REASONS THAT DIFFERENT POLLUTANTS ARE EMITTED IS DISCUSSED. RELEVANCE OF THIS PROBLEM TO THE AIR FORCE IS ALSO INVESTIGATED. ACTIONS WHICH MAY BE TAKEN TO REDUCE POLLUTANTS ARE PRESENTED IN TERMS OF TECHNOLOGY LEVEL: CURRENT, MID-TERM, AND ADVANCED TECHNOLOGY. OPERATION, RELIABILITY AND MAINTAINABILITY, IMPLEMENTATION AND COST IMPACTS ARE EVALUATED FOR EACH OF THE TECHNOLOGY LEVELS. THE EPA STANDARDS AND POSSIBLE USE BY THE AIR FORCE ARE DISCUSSED. AIR FORCE GOALS, WHICH DIFFER FROM THE EPA STANDARDS IN METHOD OF SPECIFICATION, ARE DEVELOPED. THESE GOALS WILL PERMIT CONTROL TECHNOLOGY APPLICATION WITHOUT INFLUENCING BASIC ENGINE DESIGN PARAMETERS OR PERFORMANCE. THE COST TO MEET THESE GOALS IS ESTABLISHED FOR CURRENT AF SYSTEMS. (AUTHOR) (U)

AD-779 150 13/2 4/2 20/4 1/2
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT PARIS (FRANCE)

THE FLUID DYNAMICS ASPECTS OF AIR POLLUTION RELATED TO AIRCRAFT OPERATIONS. (U)

FEB 74 53P L:BOBY,PAUL A. ;
REPT. NO. AGARD-AR-55

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: NATO FURNISHED.

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT, PLUMES, AIRPORTS, UPPER ATMOSPHERE, ATMOSPHERIC MOTION, EXHAUST GASES, DISPERSING, OPERATION, MASS TRANSFER, SMOKE, MEETINGS (U)
IDENTIFIERS: *AIRCRAFT EXHAUST, ATMOSPHERIC DIFFUSION, JET ENGINE EXHAUST (U)

THE REPORT GIVES AN OVERVIEW OF TECHNICAL PROBLEMS AND ACTIVITIES IN THE NATO COUNTRIES RELATED TO THEIR STUDY IN THE FIELD OF AIR POLLUTION WITH SPECIAL EMPHASIS ON AIRCRAFT OPERATIONS. CHAPTER TITLES INCLUDE THE DISPERSION OF POLLUTANTS FROM AIRCRAFT; AIR POLLUTION CHARACTERISTICS OF AIRCRAFT ENGINES; RESEARCH IN GERMANY ON FLUID DYNAMICS OF AIR POLLUTION RELATED TO AIRCRAFT OPERATIONS; PRELIMINARY NOTES ON LARGE SCALE MASS TRANSPORT; AIR POLLUTION FROM AIRCRAFT. (U)

AD-729 109 13/2 9/2
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

ON THE THEORY OF ATMOSPHERIC DIFFUSION IN FOG CONDITIONS. (U)

MAR 71 21P BERLIAND,M. E. IONIKUL,R. I. IRYABOVA,G. V. I

REPT. NO. AFCRL-71-0248, AFCRL-TRANS-91

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GLAVNAYA GEOFIZICHESKAYA OBSERVATORIYA, LENINGRAD. TRUDY (USSR) N207 P3-13 1968.

DESCRIPTORS: (*AIR POLLUTION, FOG), (*FOG, *ATMOSPHERIC MOTION), DIFFUSION, GASES, SMOKE, VISIBILITY, RIVERS, CONDENSATION, MOISTURE, SOLUBILITY, DIFFERENTIAL EQUATIONS, USSR (U)

IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION, TRANSLATIONS (U)

STUDY OF CASES OF INTENSE AIR POLLUTION SHOWS THAT A PART OF THEM IS RELATED TO PERIODS OF EXTENDED FOGS. THE HARMFUL EFFECT OF SMOKE AND GASEOUS ADMIXTURES IS REVEALED MORE SHARPLY IN FOG THAN IN OTHER WEATHER CONDITIONS: AN UNPLEASANT FEELING FROM THEM IS INCREASED, THE PRESENCE OF ADMIXTURES IN FOGS FURTHERMORE DECREASES THE VISIBILITY, ETC. ONE NOTES A REVERSE EFFECT WHEN THE PRESENCE OF SMOKE CONTRIBUTES TO THE CONDENSATION OF THE ATMOSPHERIC MOISTURE. IN THIS MANNER, A MUTUALLY INCREASING EFFECT OF SMOKES AND FOGS OCCURS. THE REPORT PRESENTS THE ESTIMATES OF THE INFLUENCE OF RIVER FOGS (THE THEORY OF WHICH IS DEVELOPED BY BERLIAND AND ONIKUL) ON THE DISTRIBUTION OF GASEOUS ADMIXTURES. (AUTHOR) (U)

Visibility and Mass Concentration in a Nonurban Environment, Harry J. Ettinger, George W. Royer, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Reprinted from APCA Journal, Vol 22, No. 2, Feb 1972

Chamber Studies of Visibility-Reducing Aerosols, J. C. Elder, H. J. Ettinger, R. Y. Nelson, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., LA-UR-73-938, 1973

Selected Research and Development Projects in Environmental Quality, Melvin B. Dobbs, Michael G. MacNaughton, James T. Haney, Air Force Weapons Laboratory, Air Force Systems Command, Kirtland Air Force Base, New Mexico, Tech. Note AFWL-DE-TN-74-005, Mar 1974

"The Attenuation of Visible and Infrared Radiation by Artificial Aerosols and Their Effect Upon Visibility," Kulb, W., Army Foreign Science and Technology Center, Charlottesville, Virginia, FSTC-HT-23-097-71, 1971.

"Atmospheric Pollution by Aircraft Engines," Advisory Group for Aerospace Research and Development, Paris, France, AGARD-CP-125, September 1973.

AIR POLLUTION

Chemistry and Physics

Emission Measurements

AD-902 424L 7/4 4/2
PLOCK ENGINEERING INC CAMBRIDGE MASS

REMOTE RAMAN DETECTION STUDY INSTRUMENT. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 6, 21 SEP 71-21 MAR 72,
JUN 72 74P ARDEN,WILLIAM B. I
HIRSCHFELD,TOMAS B. IKLAINER,STANLEY M. I
SCHILDKRAUT,E. ROBERT I
REPT. NO. BEI-72-370
CONTRACT: DAAA15-70-C-0418
PROJ: DA-1-W-662710-AD-27
TASK: 1-W-662710-AD-2702

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; OCT 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*RAMAN SPECTROSCOPY, INSTRUMENTATION), (*MICROMETEOROLOGY, RAMAN SPECTROSCOPY), (*AIR POLLUTION, DETECTION), CLOUDS, CHEMICAL ANALYSIS, WATER, RAYLEIGH SCATTERING, NITROGEN COMPOUNDS, AEROSOLS, DETECTORS, DATA PROCESSING, LIGHT TRANSMISSION, RUBY, POWER SUPPLIES, CARGO VEHICLES, TRAILERS, SENSITIVITY, HYDROGEN COMPOUNDS, LASERS, FLUORESCENCE, CHEMICAL WARFARE AGENTS, CARBON DIOXIDE, SPECTROMETERS, CALIBRATION, TRACER STUDIES, DETECTORS, TRANSPORTATION, MOBILE, ATMOSPHERIC TEMPERATURE, MEASUREMENT (U)
IDENTIFIERS: LIDAR(LIGHT DETECTION AND RANGING), LIGHT DETECTION AND RANGING, RAMAN SPECTROMETERS, REMOTE SENSING (U)

THE PURPOSE OF THIS EFFORT IS TO DESIGN AND FABRICATE A TRANSPORTABLE REMOTE RAMAN SPECTROMETER THAT WILL PERMIT DYNAMIC FIELD TEST MEASUREMENTS OF C AGENT CLOUDS. SINCE THE OBJECT OF THE PROGRAM IS TO DETERMINE THE FEASIBILITY OF REMOTE RAMAN DETECTION, THE INSTRUMENT HAS BEEN DESIGNED FOR MAXIMUM SENSITIVITY AND VERSATILITY. DURING THIS REPORT PERIOD, THE REMAINING WORK WAS COMPLETED TO MAKE THE INSTRUMENT FIELD-TRANSPORTABLE. AT THE END OF THIS QUARTERLY PERIOD, FIELD TESTING WAS IN PROGRESS, WITH SOME DATA ALREADY GATHERED. AN EVALUATION OF REMOTE RAMAN AS A TOOL IN MICROMETEOROLOGY IS INCLUDED. (AUTHOR) (U)

AD-717 171 14/2 13/2
CALIFORNIA INST OF TECH PASADENA DIV OF ENGINEERING AND APPLIED SCIENCE

THE USE OF CO AND CO2 LASERS TO DETECT POLLUTANTS IN THE ATMOSPHERE. (U)

DEC 70 30P MENZIES,ROBERT T. I
CONTRACT: AF-AFOSR-1492-68
PROJ: AF-9768
TASK: 976802
MONITOR: AFOSR 70-2921TR

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS), (*GAS LASERS, RADIOMETERS), (*RADIOMETERS, AIR POLLUTION), (*INFRARED LASERS, GAS DETECTORS), NITROGEN OXIDES, SULFUR COMPOUNDS, DIOXIDES, OZONE, FLUORESCENCE, MONITORS, CARBON DIOXIDE, CARBON MONOXIDE (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, *CARBON MONOXIDE LASERS, *CARBON DIOXIDE LASERS, *INFRARED EQUIPMENT, *RADIOMETERS, SULFUR DIOXIDE (U)

SEVERAL SPECTRAL COINCIDENCES BETWEEN CO LASER EMISSION LINES AND INFRARED ABSORPTION LINES OF OXIDES OF NITROGEN HAVE RECENTLY BEEN OBSERVED. USING EXISTING INFRARED SPECTROSCOPY DATA, WE PREDICT ADDITIONAL SPECTRAL COINCIDENCES: THE Q-SWITCHED CO LASER EMITS CERTAIN LINES WHICH OVERLAP SO2 ABSORPTION LINES, AND CERTAIN FREQUENCY DOUBLED CO2 LASER LINES OVERLAP NO AND CO ABSORPTION LINES. OTHER SPECTRAL OVERLAPS INVOLVING THE CO2 LASER HAVE BEEN REPORTED ELSEWHERE. BASED ON SUCH COINCIDENCES REMOTE SENSING OF THESE ATMOSPHERIC CONSTITUENTS CAN BE ACCOMPLISHED BY OBSERVING RESONANT ABSORPTION, THERMAL EMISSION, OR FLUORESCENCE. THE AUTHORS DISCUSS SENSITIVITIES FOR EACH OF THESE METHODS, USING DATA ON LINE STRENGTHS AND PRESSURE BROADENED LINE WIDTHS. WIDE BAND HETERODYNE RECEIVERS OFFER HIGH SENSITIVITY WHEN THEY CAN BE USED; OUR DISCUSSION INCLUDED THE USE OF THIS TYPE OF RECEIVER SYSTEM. (AUTHOR) (U)

AD-730 770 13/2 7/4 20/4
STANFORD UNIV CALIF MICROWAVE LAB

COMPARISON OF LASER METHODS FOR THE REMOTE DETECTION OF ATMOSPHERIC POLLUTANTS. (U)

71 98P KILDAL,H. IBYER,R. L. I
REPT. NO. ML-1956
CONTRACT: N00019-67-A-0112-0094, NGL-05-020-103

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS), (*GAS LASERS, GAS DETECTORS), RAMAN SPECTROSCOPY, BACKSCATTERING, RESONANCE ABSORPTION, RESONANCE SCATTERING, CONCENTRATION(CHEMISTRY), SENSORS, RESOLUTION, NOISE, EXCITATION, CARBON DIOXIDE, CARBON MONOXIDE, OZONE, BENZENE, SULFUR COMPOUNDS, NITROGEN OXIDES (U)
IDENTIFIERS: LASER SPECTROSCOPY, *AIR POLLUTION DETECTION, *REMOTE SENSING, SULFUR DIOXIDE, TUNABLE LASER, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

THE PAPER DISCUSSES AND COMPARES THREE METHODS OF REMOTE AIR POLLUTION DETECTION: RAMAN BACKSCATTERING, RESONANCE BACKSCATTERING, AND RESONANCE ABSORPTION. THEORETICAL EXPRESSIONS ARE DERIVED FOR THE MINIMUM DETECTABLE POLLUTANT CONCENTRATION AND IN EACH CASE THE DEPTH RESOLUTION AND THE PROBLEMS OF INTERFERENCE, PUMP DEPLETION, AND BACKGROUND NOISE ARE DISCUSSED. THE PAPER ALSO INCLUDES A BRIEF DISCUSSION OF POSSIBLE LASER SOURCES AND GIVES NUMERICAL EXAMPLES OF THE DETECTABILITIES BASED ON PRESENT TECHNOLOGY. THE ATMOSPHERIC TRANSPARENCY LIMITS THE USEFUL RANGE TO A FEW KILOMETERS FOR THE RAMAN AND RESONANCE BACKSCATTERING SCHEMES. FOR THE RESONANCE ABSORPTION TECHNIQUE THE USEFUL RANGE CAN BE AS GREAT AS FIFTY KILOMETERS. (AUTHOR) (U)

AD-723 786 13/2 7/4
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

DETECTION OF AIR POLLUTANTS WITH TUNABLE DIODE LASERS. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
NOV 70 7P HINKLEY,EVERETT D. IKELLEY, PAUL L. I
REPT. NO. JA-3839
CONTRACT: AF 19(628)-5167, ARPA ORDER-600
MONITOR: ESD TR-71-113

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN SCIENCE, V171 P635-639, 19 FEB 71.

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS), (*LASERS, AIR POLLUTION), MONITORS, INFRARED LASERS, SEMICONDUCTORS, TELLURIDES, TIN COMPOUNDS, LEAD COMPOUNDS, SAMPLING, INFRARED SPECTRA, ABSORPTION SPECTRA (U)
IDENTIFIERS: LEAD TIN TELLURIDES, *AIR POLLUTION DETECTION, *SEMICONDUCTOR LASERS, SPECTROSCOPIC ANALYSIS, TUNABLE LASERS (U)

PRELIMINARY EXPERIMENTS INDICATE THAT TUNABLE PB(1-X)SN(X)TE DIODE LASERS WILL BE USEFUL IN THE IDENTIFICATION AND SENSITIVE DETECTION OF MOST OF THE ATMOSPHERIC POLLUTANT GASES. FOR POINT-SAMPLING APPLICATIONS, CONCENTRATIONS IN THE PARTS-PER-MILLION RANGE SHOULD BE MEASURABLE WITH VERY HIGH SPECIFICITY. FOR LONG-RANGE ATMOSPHERIC TRANSMISSION TECHNIQUES, THE IMPROVED RESOLUTION CAPABILITY AND TUNABILITY OF THESE DIODE LASERS MAKE THEM ATTRACTIVE REPLACEMENTS FOR SPECTROMETERS AND FIXED-FREQUENCY LASER SOURCES WHERE OPERATION AT CRYOGENIC TEMPERATURES IS NOT A SERIOUS IMPEDIMENT. BY USING THESE LASERS AS TUNABLE LOCAL OSCILLATORS IN THE INFRARED HETERODYNE CONFIGURATION, REMOTE PASSIVE DETECTION OF GASES PRESENT IN SMOKESTACK EFFLUENT APPEARS POSSIBLE. FINALLY, PULSED OPERATION AT TEMPERATURES AVAILABLE WITH SIMPLE CRYOGENIC COOLERS PERMITS IMMEDIATE APPLICATION TO THE FAST DETECTION OF GASES PRESENT IN AUTOMOBILE EXHAUST AND IN CHEMICAL PROCESSING PLANTS. (AUTHOR) (U)

AD-747 773 13/2 21/5
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE STATION TENN

MEASUREMENT OF POLLUTANT EMISSIONS FROM AN AFTERBURNING TURBOJET ENGINE AT GROUND LEVEL. II. GASEOUS EMISSIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 22 JUN-21 SEP 71, AUG 72 46P LAZALIER,G. R. (GEARHART, J. W.)
REPT. NO. AEDC-TR-72-20
CONTRACT: F40600-73-C-0009
PROJ: AF-3044, ARO-RW-6239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO, INC., TULLAHOMA, TENN. REPT. NO. ARO-ETF-TR-72-30. SEE ALSO PART I, AD-749 048.

DESCRIPTORS: (*TURBOJET ENGINES, EXHAUST GASES), (*EXHAUST GASES, *AFTERBURNERS), (*AIR POLLUTION, EXHAUST GASES), (*GAS DETECTORS, EXHAUST GASES), AIRCRAFT ENGINES, CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES, HYDROCARBONS, MEASUREMENT, GAS ANALYSIS, HUMIDITY, WIND, DIFFUSION, CONCENTRATION(CHEMISTRY), INFRARED SPECTROSCOPY, ELECTROCHEMISTRY, GAS IONIZATION (U)
IDENTIFIERS: *AIRCRAFT EXHAUST, PLUMES, FLAME IONIZATION DETECTORS, J-85 ENGINES, J-85-GE-5 ENGINES (U)

THE PERFORMANCE OF A SAMPLING AND MEASUREMENT SYSTEM FOR THE GASEOUS SPECIES OF CARBON MONOXIDE (CO), CARBON DIOXIDE (CO2), TOTAL HYDROCARBONS (CO), CARBON DIOXIDE (CO2), TOTAL HYDROCARBONS (C(X)H(Y)), NITROGEN DIOXIDE (NO2), AND TOTAL OXIDES OF NITROGEN (NO(X)) WAS DEMONSTRATED FOR AN AFTERBURNING TURBOJET ENGINE POWER CONDITIONS FROM IDLE TO MAXIMUM AFTERBURNING AT GROUND LEVEL. DATA WERE OBTAINED, USING A PORTABLE EMISSIONS MEASUREMENT SYSTEM, AT POSITIONS RANGING FROM IMMEDIATELY AT THE NOZZLE EXIT TO 96 FT AFT OF THE NOZZLE EXIT PLANE. A J85-GE-5 ENGINE WAS USED TO GENERATE THE GASEOUS EMISSIONS. NONDISPERSIVE INFRARED DETECTORS WERE USED FOR CO AND CO2 MEASUREMENTS; A FLAME IONIZATION DETECTOR WAS USED FOR C(X)H(Y) MEASUREMENTS; AND ELECTROCHEMICAL DEVICES OPERATING ON THE FUEL CELL PRINCIPLE WERE USED FOR NO2 AND NO(X) MEASUREMENTS.

AD-737 588 13/2
ARMY TOPOGRAPHIC COMMAND WASHINGTON D C

AN ANNOTATED BIBLIOGRAPHY OF REMOTE SENSING OF AIR AND WATER POLLUTION. (U)

DESCRIPTIVE NOTE: SPECIAL BIBLIOGRAPHY, SEP 71 26P BROOKS,PAUL DENNIS (THOMSON, GEORGE W.)

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS); (*WATER POLLUTION, *DETECTORS), (*BIBLIOGRAPHIES, DETECTORS), PHOTOGRAMMETRY, OPTICAL RADAR, INTERFEROMETERS, LASERS, MONITORS, AERIAL PHOTOGRAPHY, INFRARED PHOTOGRAPHY, ELECTRICAL RESISTANCE (U)
IDENTIFIERS: *WATER POLLUTION DETECTION, NEPHELOMETERS, *AIR POLLUTION DETECTION, AIRBORNE, DETECTION, *REMOTE SENSING (U)

THE ANNOTATED BIBLIOGRAPHY REPRESENTS AN ATTEMPT TO COMPILE A COMPLETE LIST OF LITERATURE PUBLISHED BETWEEN 1965 - 1970 ON THE SUBJECT OF REMOTE SENSING OF AIR AND WATER POLLUTION. THE GENERAL TYPES COVERED INCLUDE: AIRBORNE AND SPACECRAFT SURVEILLANCE; PHOTOGRAMMETRIC; LIDAR; NEPHELOMETERS; NON-DISPERSIVE INFRARED; OPTICAL INTERFEROMETER; AERIAL PANCHROMATIC PHOTOGRAPHY; AERIAL INFRARED IMAGERY; RADIOPHASE; AND EARTH RESISTIVITY MEASUREMENTS. (U)

AD-749 993 4/1 13/2
COLORADO STATE UNIV FORT COLLINS FLUID DYNAMICS AND DIFFUSION LAB

WIND-TUNNEL MODELING OF FLOW DIFFUSION OVER AN URBAN COMPLEX. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., MAY 71 89P CHAUDHRY,F. H. ICERNAK,J. E. I
REPT. NO. CER70-71FHC-JEC29, THEMIS-CER-TR-17
CONTRACT: N00019-68-A-0493-0001
PROJ: NR-062-414

UNCLASSIFIED REPORT

DESCRIPTORS: (*URBAN AREAS, *ATMOSPHERIC MOTION), (*AIR POLLUTION, ATMOSPHERIC MOTION), WIND TUNNEL MODELS, HEAT, DIFFUSION, TURBULENT BOUNDARY LAYER, WIND, SKIN FRICTION, MATHEMATICAL MODELS, DESIGN, URBAN PLANNING, INDIANA (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION, THEMIS PROJECT, TURBULENT DIFFUSION, EDDIES (U)

THE PURPOSE OF THE STUDY WAS TO EXPLORE AND TEST THE POTENTIAL OF WIND-TUNNEL MODELING AS AN ALTERNATIVE TO THE MORE EXPENSIVE AND TEDIOUS FULL-SCALE URBAN DIFFUSION EXPERIMENTS. A MODEL OF THE CITY OF FORT WAYNE, INDIANA WAS CONSTRUCTED TO A HORIZONTAL SCALE OF 1: 4000 AND STUDIED IN AN ENVIRONMENTAL WIND TUNNEL. IF THE ROUGHNESS AND THE HEAT-ISLAND EFFECTS ARE MODELLED PROPERLY, AND THE APPROACH FLOWS MADE SIMILAR, THE FLOW OVER THE MODEL CITY WAS FOUND TO CONFORM TO THAT IN THE FIELD. THE PATTERN OF THE HEAT ISLAND OVER FORT WAYNE WAS REPRODUCED ALMOST EXACTLY. SIMULATION OF DIFFUSION FROM AN AERIAL LINE SOURCE WAS ACCOMPLISHED BY TRAVERSING A CONTINUOUSLY EMITTING SOURCE OF KRYPTON-85 ACROSS THE CITY. THE MODEL WAS FOUND TO GIVE SAME OVERALL PICTURE OF THE EFFECT OF THE CITY ON DISPERSION PROCESS AS THAT OBSERVED IN THE FIELD. (U)

AD-920 293L 13/2 19/1
W.SHINGTON TECHNOLOGICAL ASSOCIATES INC ROCKVILLE MD

APPLICABILITY OF RAMAN SPECTROSCOPY TO CONTINUOUS MONITORING OF POLLUTANTS FROM ARMY AMMUNITION PLANTS. II. TETRANITROMETHANE IN AIR. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., MAR 74 62P FREER,CHARLES S. IROTH, MILTON I
CONTRACT: DAAA21-73-C-0681
MONITOR: PA TR-4667

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; MAR 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: SARPA-TS-S, DOVER, N. J. 07801.

DESCRIPTORS: (*NITROMETHANE, *RAMAN SPECTROSCOPY), (*TOLUENES, RAMAN SPECTROSCOPY), (*AIR POLLUTION, AMMUNITION), INDUSTRIAL PLANTS, WASTES, MONITORS, RDX, HMX, NITROGEN OXIDES, DIOXIDES, WATER VAPOR, NITROGEN COMPOUNDS, TNT, ULTRAVIOLET SPECTRA, INFRARED SPECTRA, VISIBLE SPECTRA, NEAR INFRARED RADIATION (U)
IDENTIFIERS: *TETRANITROMETHANE, *MONONITROTOLUENE (U)

THE ABSORPTION SPECTRA OF TETRANITROMETHANE AND MONONITROTOLUENE HAVE BEEN ANALYZED FOR POSSIBLE MONITORING APPLICATION FROM 1.00A TO 15 MICROMETERS. ONLY THE INFRARED REGION HAS BEEN FOUND TO HAVE A POSSIBLE POTENTIAL FOR APPLICATION. INFRARED INSTRUMENTATION HAS BEEN SHOWN TO REQUIRE DOUBLEBEAM TECHNIQUES WITH AN ACCURATE WATER VAPOR COMPENSATION SCHEME. POSSIBLE EFFECTS OF MINUTE QUANTITIES OF N2O IN THE ANALYZED TAIL GAS ARE DISCUSSED. THE PHYSICAL DATA HAS BEEN FOUND TO LIMIT THE APPLICATION OF INFRARED EQUIPMENTS TO ACCURACIES AND SENSITIVITIES OF 10 PPM AS LONG AS WATER VAPOR IS CORRECTLY COMPENSATED FOR AND N2O IS NOT PRESENT IN QUANTITIES GREATER THAN 10 PPM. THE RAMAN EMISSION SPECTRA OF TNM AND THE MNT'S ARE PRESENTED AND DISCUSSED. POSSIBLE END-ITEM APPARATUS BASED ON THIS TECHNIQUE HAS BEEN SHOWN TO BE CAPABLE OF 2 PPM ACCURACY SUBJECT TO THE CONDITION THAT NO2 FLUORESCENT PROBLEMS ARE MINIMIZED.

AD-751 888 7/2 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

THE DETERMINATION OF TOTAL NITROGEN OXIDES IN STACK GASES. PHENOLDISULFONIC ACID METHOD. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 68 9P THORPE,CHARLES J. D. ;
REPT. NO. EHL-M-68M-33
PROJ: EHL-P68-90

UNCLASSIFIED REPORT

DESCRIPTORS: (*NITROGEN OXIDES, *GAS ANALYSIS), (*AIR POLLUTION, NITROGEN OXIDES), COLORIMETRIC ANALYSIS, QUANTITATIVE ANALYSIS, TEST METHODS (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, *PHENOL DISULFONIC ACID ANALYSIS, FLUE GASES (U)

THE WELL KNOWN SALTZMAN METHOD FOR OXIDES OF NITROGEN IS INTENDED FOR THE DETERMINATION OF THESE CONSTITUENTS IN THE AMBIENT ATMOSPHERE IN THE RANGE OF A FEW PARTS PER BILLION TO ABOUT 5PPM. HOWEVER, WHEN SULFUR DIOXIDE IS PRESENT IN THE GAS TO BE SAMPLED AND/OR THE CONCENTRATION RANGE OF THE OXIDES OF NITROGEN IS FROM FIVE TO SEVERAL THOUSAND PPM, THE SALTZMAN METHOD IS NOT SUITABLE, AND THE METHOD USING PHENOLSISULFONIC ACID (PDS) IS USED AS DISCRIBED HERE. THIS METHOD IS GOOD FOR STACK GASES BUT IS UNSUITABLE FOR AMBIENT ATMOSPHERIC SAMPLING. IN THE PDS METHOD GRAB SAMPLES ARE COLLECTED IN EVACUATED FLASKS, ABSORBED IN AN ACIDIC MEDIUM, AND DETERMINED COLORIMETRICALLY. (U)

AD-921 336L 13/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SPECTROMETER FOR THE DETERMINATION OF AIR POLLUTION. (U)

JUL 74 6P
REPT. NO. FTD-HC-23-2157-74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; FOREIGN INFO.; 12 AUG 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN TECHNOLOGY DIV., ATTN: TDBDR, WRIGHT-PATTERSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE: EDITED TRANS. OF STIINTA SI TEHNICA (RUMANIA) V24 N6 P52 MAY 73.

DESCRIPTORS: (*AIR, *SAMPLING), (*X RAY SPECTROSCOPY, AIR POLLUTION), (*SAMPLERS, *AIR), (*AIR POLLUTION, DETERMINATION), SPECTROMETERS, X RAYS, RADIATION, EMISSION, X RAY SPECTRA, POLLUTANTS, RUMANIA, TRANSLATIONS (U)

THE SIEMENS FIRM HAS ESTABLISHED A NEW SYSTEM FOR DETERMINATION OF THE AIR POLLUTION RATE. AN AIR SAMPLE IS PASSED THROUGH A WET FILTER, ON WHICH IT LEAVES A TRACE WHICH IS SUBJECTED TO BOMBARDMENT WITH VERY INTENSIVE X-RAYS. AFTER THIS, THE SUBSTANCES REMAINING ON THE FILTER WILL BECOME EXCITED, AND A SECONDARY EMISSION OF X-RAYS OCCURS. THE LINES CORRESPOND TO THE CHARACTERISTIC FREQUENCIES OF THE UNKNOWN SUBSTANCES. WITH THIS NEW SYSTEM, THE ANALYSIS OF THE ATMOSPHERE IS REDUCED TO OBSERVATION OF SPECTRAL LINES AND DETERMINATION OF WAVE LENGTH. THE DEVICE SEARCHES THE POSITION OF 9 LINES, BUT THIS MIGHT BE INCREASED TO 36, WHICH MEANS THAT IT MIGHT DETECT 36 DIFFERENT POLLUTION ELEMENTS IN THE AIR SAMPLE. ONE OF THE FIRST DEVICES IS ALREADY WORKING IN WEST GERMANY, IN SCHAUINSLAND, AT AN ALTITUDE OF 1298 M. (U)

AD-752 518 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

AIR POLLUTION MONITORING REVIEW.
(PRESENTED AT THE ANNUAL BEE SYMPOSIUM (7TH) HELD AT BROOKS AFB, TEXAS.) (U)

JUN 68 27P
REPT. NO. EHL-M-68M-90
PROJ: EHL-P68-20

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *GAS ANALYSIS); MONITORS, SOURCES, TEST METHODS, AIR FORCE, MILITARY FACILITIES(U)
IDENTIFIERS: AIR POLLUTION DETECTION, FLUE GASES (U)

DISCUSSED ARE RECOMMENDATIONS FOR TECHNIQUES TO MINITOR EMISSIONS FROM AIR FORCE FACILITIES. (U)

AD-769 982 13/2
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

UNITED STATES AIR FORCE AIRCRAFT POLLUTION EMISSIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JAN-13 JUL 73,
NOV 73 61P NAUGLE,DENNIS F. (DELANEY, BERNARD T.)
REPT. NO. AFWL-TR-73-199

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT ENGINES, *AIR POLLUTION), (*JET ENGINES, AIR POLLUTION), MILITARY AIRCRAFT, AIR FORCE EQUIPMENT, TEST METHODS, EXHAUST GASES, NITROGEN OXIDES, CARBON MONOXIDE, PARTICULATES, HYDROCARBONS, TABLES(DATA) (U)

THE INTEREST IN POLLUTION EMISSIONS FROM AIRCRAFT HAS BEEN ENHANCED BY ENVIRONMENTAL PROTECTION AGENCY'S RECENT DETERMINATION THAT MAJOR CIVILIAN AIRPORTS ARE SIGNIFICANT CONTRIBUTONS TO LOCALIZED AIR-QUALITY DEGRADATION. THIS REPORT SUMMARIZES THE USAF AIRCRAFT AND ENGINES IN COMMON USE, PRESENTS NORMALIZED ENGINE POLLUTION EMISSION FACTORS (EMISSION INDICES), REVIEWS DEFICIENCIES IN PRESENT EMISSION DATA, AND RECOMMENDS FUTURE EFFORTS TO BETTER ANALYZE AIRCRAFT EMISSIONS. PRIMARY GOALS OF IMPACT ASSESSMENTS AT MANY LOCATIONS AND TO STIMULATE COMMENT ON THE DIRECTION OF FUTURE USAF EFFORTS CONCERNING THE RECOMMENDED PROJECTS. (AUTHOR) (U)

AD-744 084 9/1 19/4
SPECTRAN INC HOLLYWOOD CALIF

DIAL PACK DUST CLOUD DATA ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 72 58P AUCKLAND,J. C. I
CONTRACT: F30602-71-C-0297
MONITOR: RADC TR-72-68

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERES, MICROWAVES), (*SURFACE BURST, DUST), RADIOMETERS, PARTICLE SIZE, DISTRIBUTION FUNCTIONS, ALBEDO, POLARIZATION, TEMPERATURE, MATHEMATICAL MODELS, NUCLEAR EXPLOSIONS, RADAR REFLECTIONS, SIMULATION (U)
IDENTIFIERS: MIE SCATTERING, POLARIZED ELECTROMAGNETIC RADIATION, REMOTE SENSING, DIAL PACK SHOT (U)

PROPERTIES OF THE ATMOSPHERE CAN BE MEASURED DIRECTLY OR INDIRECTLY. DIRECT MEASUREMENTS PROVIDE POINT MEASUREMENT ACCURACIES BUT INDIRECT OR REMOTE SENSING TECHNIQUES PERMIT PROBES OF A LARGE VOLUME AT TIMES WHEN DIRECT MEASUREMENTS MAY NOT BE POSSIBLE. EVENT DIAL PACK IN JULY OF 1970 IS AN EXAMPLE OF SUCH A CONDITION. THE REPORT DISCUSSES MEASUREMENTS MADE BY 10.2 AND 30 GHZ MICROWAVE RADIOMETERS UPON THE DUST CLOUDS DURING THAT EXPERIMENT AND THE RESULTS OF A DETAILED ANALYSIS UPON THAT DATA. (AUTHOR) (U)

AD-921 935L 13/2 20/5
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

EMISSION AND IMMISSION MEASUREMENTS OF AIR POLLUTION WITH THE AID OF LASERS. (U)

OCT 73 17P BECK,R. (ENGLISCH,W. I
REPT. NO. FSTC-HT-23-272-74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF MESSTECHNIK (WEST GERMANY) N2 P39-45 1973.

DESCRIPTORS: (*AIR POLLUTION, *LASERS), POLLUTANTS, EMISSION, MEASUREMENT, SCATTERING, FLUORESCENCE, GAS LASERS, DYE LASERS, SEMICONDUCTOR LASERS, RAMAN SPECTRA, RESONANCE ABSORPTION, WEST GERMANY, CONCENTRATION(COMPOSITION), GAS ANALYSIS (U)
IDENTIFIERS: IMMISSION, ION LASERS, RAMAN SCATTERING (U)

THE USE OF A LASER PERMITS GASEOUS AIR POLLUTANTS TO BE ANALYZED FAST AND ACCURATELY EVEN AT LOW CONCENTRATIONS. NOT ONLY SINGLE SAMPLES OR CONTINUOUS STREAMS OF AIR BUT ALSO REMOTE CLOUDS OF POLLUTANTS CAN BE ANALYZED IN THIS WAY. BASICALLY, THERE ARE THREE DIFFERENT METHODS OF REMOTE ANALYSIS. THEY ARE BASED ON RAMAN SCATTERING, RESONANCE FLUORESCENCE, AND RESONANCE ABSORPTION MEASUREMENTS. THE BEST RESULTS ARE OBTAINED WITH THE RESONANCE ABSORPTION TECHNIQUE. (AUTHOR) (U)

AD-480 201 4/1 20/5
UNIVERSITY OF THE WEST INDIES KINGSTON (JAMAICA DEPT OF PHYSICS

A STUDY OF THE FEASIBILITY OF MEASURING ATMOSPHERIC DENSITIES BY USING A LASER - SEARCHLIGHT TECHNIQUE. (U)

DESCRIPTIVE NOTE: ANNUAL SCIENTIFIC REPT. APR 64-MAR 65.
MAY 65 72P CLEMESHA ,B. R. IKEDT ,S. S. WRIGHT,R. W. H. I
REPT. NO. UWI-P2
CONTRACT: AF-AFOSR-616-64

UNCLASSIFIED REPORT

DESCRIPTORS: (*UPPER ATMOSPHERE, DENSITY); (*LASERS, ATMOSPHERES), FEASIBILITY STUDIES, MEASUREMENT, ATMOSPHERIC SOUNDING, SCATTERING, DUST, AEROSOLS, HIGH ALTITUDE, BEAMS(ELECTROMAGNETIC), THEORY, OPTICAL RADAR, RUBY, RADAR CROSS SECTIONS, RADAR RECEIVERS, RADAR TRANSMITTERS, DISPLAY SYSTEMS, SIGNAL-TO-NOISE RATIO, RADAR EQUIPMENT, ELECTRONIC EQUIPMENT, SEARCHLIGHTS (U)

AN ANALYSIS IS MADE OF THE DESIGN OF EQUIPMENT TO BE USED FOR MEASURING ATMOSPHERIC DENSITIES BY OBSERVING THE SCATTERING FROM A LASER LIGHT-BEAM PROJECTED VERTICALLY INTO THE ATMOSPHERE. THIS ANALYSIS IS MADE IN TERMS OF BOTH THE EXPECTED SCATTERING UNDER TYPICAL CONDITIONS AND THE EXPERIMENTAL DIFFICULTIES WHICH ARE ENCOUNTERED. A COMPLETE DESCRIPTION IS GIVEN OF AN EQUIPMENT CONSTRUCTED TO MAKE SUCH MEASUREMENTS AND THE EARLY RESULTS ARE DESCRIBED. IT IS SHOWN THAT THE METHOD WORKS WELL WITH THE COMPARATIVELY SIMPLE APPARATUS USED. UP TO 30 KM. VARIOUS DUST AND AEROSOL LAYERS CAN BE OBSERVED BOTH BY DAY AND BY NIGHT. BETWEEN 30 KM. AND 70 KM. THE VARIATION OF THE ATMOSPHERIC DENSITY WITH HEIGHT CAN BE MEASURED AT NIGHT AND HAS BEEN FOUND TO AGREE WITH VALUES CALCULATED ON THE BASIS OF RAYLEIGH SCATTERING AND ASSUMING A MODEL ATMOSPHERE. THE POSSIBLE EXAMINATION OF METEORIC DUST AT ALTITUDES BETWEEN 80 KM. AND 140 KM. IS DISCUSSED. (AUTHOR) (U)

AD-889 026 17/8 4/1 13/2
DESERET TEST CENTER FORT DOUGLAS UTAH

LIDAR-TRACER ATMOSPHERIC DIFFUSION MEASUREMENT SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 71 22P ROSS,RICHARD A. I
REPT. NO. DTC-TN-72-602
PROJ: RDT/E-1-T-062111-A-128, USATECOM-5-CO-403-000-031

UNCLASSIFIED REPORT

DESCRIPTORS: (*OPTICAL RADAR, LASERS); (*LIGHT TRANSMISSION, ATMOSPHERES), (*AIR POLLUTION, MEASUREMENT), COHERENT RADIATION, SCATTERING, RAMAN SPECTROSCOPY, TRACER STUDIES (U)
IDENTIFIERS: ATMOSPHERES, ATTENUATION, *ATMOSPHERIC SCATTERING, *LASERS, *OPTICAL RADAR (U)

DEVELOPMENT OF THE RAMAN LIDAR (LASER RADAR) SYSTEM HAS REALIZED MARKED PROGRESS IN RECENT MONTHS. IT WILL PROVIDE A UNIQUE METHOD FOR DETERMINING THE COMPOSITION AND CONCENTRATION OF ATMOSPHERIC CONSTITUENTS AS SMALL AS GAS MOLECULES. THUS, THIS SYSTEM WILL NOT ONLY PROVIDE A METHOD FOR MONITORING THE STATUS OF THE ATMOSPHERE BUT ALSO PROVIDE INSTANTANEOUS PORTRAYALS OF CHANGES OF THE DENSITY OF A PORTION OF A TRACER CLOUD, AS WELL AS IDENTIFY THE CONTENT OF THE CLOUD. THIS IS MOST EASILY ACCOMPLISHED BY UTILIZING THE PHENOMENON OF RAMAN SCATTERING IN CONJUNCTION WITH AN APPROPRIATE TRACER CLOUD. A RAMAN LIDAR SYSTEM WOULD ALLOW AN INDIRECT MEASUREMENT OF TURBULENT DIFFUSION PROCESSES, CONCENTRATION PROFILES, AND COMPOSITION IDENTIFICATION THAT WOULD BE ORDERS OF MAGNITUDE BETTER THAN THE EXISTING STANDARD FIELD SAMPLER TECHNIQUES. EMPLOYING INFORMATION FROM SUCH A SYSTEM WOULD ALLOW THE COMPUTATION OF SUCH THINGS AS DOWNWIND HAZARD PREDICTION WITH MARKED IMPROVEMENT IN THE PRECISION BECAUSE OF THE HIGHER GRADE DATA WHICH WOULD INCORPORATE CONTINUOUS REAL TIME SAMPLING FROM A SENSOR LOCATED AT A SITE REMOTE FROM THE TRACER CLOUD. (AUTHOR) (U)

AD-709 298 20/5 4/1
BATTELLE MEMORIAL INST RICHLAND WASH PACIFIC NORTHWEST LABS

DEVELOPMENT OF A LASER SYSTEM FOR ABSOLUTE ATMOSPHERIC DIFFUSION MEASUREMENT OF A GASEOUS TRACER MATERIAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 67-JUN 69, DEC 69 95P VALI,WALT (GILMORE,TODD I GORDON,RICHARD L. I
REPT. NO. BNW-139
PROJ: AF-7655
TASK: 765501
MONITOR: AFCRL 70-0258

UNCLASSIFIED REPORT

DESCRIPTORS: (*LASERS, DESIGN), (*ATMOSPHERES, TRACER STUDIES), (*AEROSOLS, DIFFUSION), MEASUREMENT, GASES, RESONANCE SCATTERING, FLUORESCENCE, NITROGEN, AIR POLLUTION (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION (U)

RESULTS ARE REPORTED OF EXPERIMENTS DESIGNED TO IDENTIFY A GASEOUS TRACER MATERIAL FOR USE IN A LASER SYSTEM FOR REAL-TIME OBSERVATION OF ATMOSPHERIC DIFFUSION. THREE POSSIBLE MECHANISMS OF INTERACTION BETWEEN LIGHT AND GAS MOLECULES ARE DISCUSSED: RESONANCE SCATTERING, RAYLEIGH SCATTERING, AND FLUORESCENCE. WAVELENGTH REQUIREMENTS CONNECTED WITH THE RESONANCE SCATTERING APPROACH REQUIRE ADDITIONAL LASER DEVELOPMENT. SUCCESSFUL APPLICATION OF THE RAYLEIGH SCATTERING TECHNIQUE AWAITS IDENFICIATION OF A GAS WITH A RAYLEIGH SCATTERING CROSS SECTION NEAR 10 TO THE (-2)ST POWER CM. SQUARED. THE FLUORESCENCE APPROACH IS FEASIBLE AT THIS TIME WITH HEXAFLUOROACETONE AS THE TRACER GAS AND A NITROGEN LASER AS THE LIGHT SOURCE. PRELIMINARY SYSTEM DESIGN CONSIDERATIONS ARE PRESENTED IN AN APPENDIX. (AUTHOR) (U)

AD-755 101 4/2 14/2
ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RAN-- ATMOSPHERIC SCIENCES LAB

SOLID-STATE LASER MULTIWAVELENGTH IDENTIFICATION AND DISPLAY SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., JAN 73 19P SCHLEUSENER,STUART A. I WHITE,KENNETH O. I
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-19
MONITOR: ECOM 5473

UNCLASSIFIED REPORT

DESCRIPTORS: (*METEOROLOGICAL INSTRUMENTS, *SPECTRUM ANALYZERS), LASERS, IDENTIFICATION SYSTEMS, MOLECULAR SPECTROSCOPY, AIR POLLUTION, ANALOG-TO-DIGITAL CONVERTERS, DISPLAY SYSTEMS, REAL TIME (U)
IDENTIFIERS: *LASER SPECTROSCOPY, AIR POLLUTION DETECTION, ATMOSPHERES, COMPOSITION(PROPERTY) (U)

A HIGH-SPEED SYSTEM FOR MAKING SIMULTANEOUS WAVELENGTH-DEPENDENT TRANSMISSION MEASUREMENTS ON AS MANY AS FOUR DIFFERENT WAVELENGTHS FROM A LONG-PULSE SOLID-STATE LASER HAS BEEN DEVELOPED. THE NEW SYSTEM CAN MAKE SIMULTANEOUS ON AND OFF (REFERENCE) ABSORPTION LINE MEASUREMENTS IN ABSORPTION CELL TESTS IN A PERIOD OF MICROSECONDS, THEREBY REDUCING EFFECTS OF CHANGES IN CELL OPTICAL CONDITIONS. AN ASSOCIATED DUAL PARAMETER ANALYZER CONTOUR MODE DISPLAY CAN PRESENT VISUAL TRANSMISSION DATA AT ANY TWO CHOSEN WAVELENGTHS FOR REAL-TIME OBSERVATION PURPOSES. A PROPOSED SYSTEM USAGE OF IN SITU HIGH-SPEED ATMOSPHERIC TRANSMISSION MEASUREMENTS IS ALSO PRESENTED IN WHICH REDUCTION OF TURBULENCE EFFECTS CAN BE EXPECTED, DUE TO THE INULTANEOUS MEASUREMENTS. THIS WILL BE OF IMPORTANCE IN MEASURING AIR POLLUTANTS WHERE TURBULENCE AFFECTS THE CONCENTRATION. (U)

AD-803 214 15/2
GENERAL ELECTRIC CO SYRACUSE N Y ELECTRONICS LAB

BIOLOGICAL AEROSOL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 15 AUG-15 NOV 66.
NOV 66 15P ROBERTS,R. N. I
CONTRACT: DA-18-064-AMC-493(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY BIOLOGICAL LABS., FORT DETRICK, FREDERICK, MD. 21701. ATTN: TECHNICAL RELEASES SECTION, TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (*BIOLOGICAL WARFARE, NUCLEI(BIOLOGY)), (*BACTERIAL AEROSOLS, *AMINES), (*NUCLEI(BIOLOGY), *TOXIC AGENT AGENTS), FLUID FILTERS, SENSITIVITY, SAMPLING, AMMONIA, GAS DETECTORS, PLASTICS, GAS CHROMATOGRAPHY, SERRATIA MARCESCENS, CELLS(BIOLOGY), VIABILITY (U)
IDENTIFIERS: CONDENSATION NUCLEI, DETECTORS, CONVERTERS, MODIFICATION (U)

THIS CONDENSATION NUCLEI DETECTOR WAS IMPROVED BY MODIFICATIONS TO TUBING AND VALVES. THE AMMONIA CONVERTER WAS REDESIGNED AND CONSTRUCTED AS AN INTEGRATED PYREX UNIT RESULTING IN A LOWER BACKGROUND AND HIGHER SENSITIVITY. BIOLOGICALLY IMPORTANT AMINES WERE FOUND TO BE READILY DETECTED. A STUDY OF CORONA CONVERSION PRODUCTS WAS INITIATED. SAMPLES SUPPLIED BY FORT DETRICK WERE ANALYZED. (AUTHOR) (U)

AD-789 813 7/4 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING SO2, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73, AUG 74 22P DEE,L. A. HARTENS,H. H. HAKAMURA,J. T. I
REPT. NO. AFRPL-TR-74-54
PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE, *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE OXIDES, LITHIUM CARBONATES, *AIR POLLUTION DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE (SIF4) USING THE SOLID SORBENT TECHNIQUE WAS INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN. SORBENTS INCLUDED LI2CO3, PBO2, AND MNO2. (U)

AD-752 523 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

AIR POLLUTION POTENTIAL FROM ELECTROPLATING OPERATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 69 10P DIAMOND,PHILIP I
REPT. NO. EHL-E68-63

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTROPLATING, AIR POLLUTION), (*AIR POLLUTION, *WASTES(INDUSTRIAL)), MILITARY FACILITIES, AIR FORCE, NITROGEN OXIDES, CYANIDES, CHROMIUM COMPOUNDS, CORROSIVE GASES, ACIDS (U)
IDENTIFIERS: NITROGEN OXIDE(NO2), HYDROGEN CHLORIDE, HYDROGEN CYANIDE (U)

MEASUREMENTS WERE MADE OF EMISSION RATES FROM ELECTROPLATING OPERATIONS CONSIDERED TO HAVE MAXIMUM AIR POLLUTION POTENTIAL. SAMPLING WAS PERFORMED AT MCCLELLAN AND ADDITIONAL DATA FROM A PREVIOUS SURVEY AT HILL AIR FORCE BASE WAS USED. VALUES OBTAINED WERE EXTREMELY LOW. BASED ON EXISTING FEDERAL STANDARDS, NO COLLECTORS ARE SPECIFICALLY REQUIRED FOR ELECTROPLATING EMISSIONS. EXPERIENCE OF STATE AND INDUSTRY AIR POLLUTION PERSONNEL, HOWEVER, INDICATES THAT CHROME PLATING AND STRONG CAUSTIC EMISSIONS DO REQUIRE COLLECTORS. (U)
(AUTHOR)

AD-909 683L 15/2 6/6 6/3
STANFORD RESEARCH INST MENLO PARK CALIF

FEASIBILITY OF OPTICAL REMOTE DETECTION TECHNIQUES. (U)

DESCRIPTIVE NOTE: STATUS REPT. NO. 2, 29 OCT 72-20 APR 73,
APR 73 37P OBLANAS,JOHN (ROSS,DAVID I
ANPAR,MICHAEL I
CONTRACT: DAAA15-72-C-0338
PROJ: SRI-2096

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 9 MAY 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-TL, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*BACTERIAL AEROSOLS, OPTICAL PROPERTIES), (*GAS DETECTORS, SAMPLING), AEROBIOLOGY, AIR POLLUTION, OPTICS, DETECTION, RAMAN SPECTROSCOPY, SCATTERING, FLUORESCENCE, PHOSPHORESCENCE, RESONANCE, ABSORPTION SPECTRA, BACKSCATTERING, RANGE(DISTANCE), REMOTE CONTROL, SENSITIVITY, BACKGROUND, FLUOROMETERS, OPTICAL TRACKING, PHOTOMULTIPLIER TUBES, SIGNAL-TO-NOISE RATIO, PARTICLES, PARTICLE SIZE, BAND SPECTRA, TRYPTOPHAN, ESCHERICHIA COLI, BACILLUS SUBTILIS, STAPHYLOCOCCUS AUREUS, PSEUDOMONAS AEROGINOSA, DISTRIBUTION (U)
IDENTIFIERS: DIFFERENTIAL ABSORPTION TECHNIQUES, MIE SCATTERING, OPTICAL DETECTION, LIGHT SCATTERING, RAMAN SPECTRA, STREPTOCOCCUS FACCIUM (U)

THE OBJECTIVE OF THIS RESEARCH IS TO CONDUCT EXPLORATORY STUDIES OF THE OPTICAL PROPERTIES OF CERTAIN AEROSOLS TO ESTABLISH THE FEASIBILITY OF DEVELOPING METHODS AND EQUIPMENT FOR THE REMOTE DETECTION OF AEROSOLS USING OPTICAL TECHNIQUES. (U)

AD-729 929 13/2
EDGEWOOD ARSENAL MD

PROCEEDINGS OF MEETING ON ENVIRONMENTAL POLLUTION (2ND) 24-25 MARCH 1971, SPONSORED BY AMERICAN ORDNANCE ASSOCIATION. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION, AUG 71 226P LOVE,SOLOMON I
REPT. NO. EA-SP-100-102

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, SYMPOSIA), (*WATER POLLUTION, SYMPOSIA), DEPARTMENT OF DEFENSE, MONITORS, RAMAN SPECTROSCOPY, MARYLAND, PENNSYLVANIA, URBAN AREAS, INCINERATORS, SCIENTIFIC RESEARCH, NUCLEAR POWER PLANTS, RADIOLOGICAL CONTAMINATION, ECOLOGY, DISPOSAL, WASTES(SANITARY ENGINEERING), PLASTICS, PESTICIDES (U)
IDENTIFIERS: AIR POLLUTION DETECTION, REMOTE SENSING, *SOLID WASTE DISPOSAL, *GOVERNMENT POLICIES, HAZARDOUS MATERIALS, TOXIC AGENT DECONTAMINATION, EAGLE PROJEC, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

THE TITLES OF THE REPORTS PRESENTED INCLUDE: THE JOINT ROLE OF DEPARTMENT OF DEFENSE AND INDUSTRY IN PROTECTING THE ENVIRONMENT; CHANGES IN FEDERAL ORGANIZATION FOR ENVIRONMENTAL CONTROL - CHANGES FLOWING FROM THE ESTABLISHMENT OF THE ENVIRONMENTAL PROTECTION AGENCY; THE AIR POLLUTION STORY IN ALLEGHENY COUNTY; 'CAN THE URBAN ENVIRONMENT BE MANAGED'; FEDERAL PROGRAM FOR AIR MONITORING TECHNOLOGY; M34 DEMILITARIZATION PROGRAM TASK FORCE EAGLE; DETECTION AND PROTECTION ASPECTS OF PROJECT EAGLE; CONSIDERATION IN REMOTE RAMAN SPECTROSCOPY; MARYLAND'S STATE AND LOCAL AIR QUALITY CONTROL AGENCIES 'ROUTINE COMPREHENSIVE AIR MONITORING SYSTEM'; PROBLEMS IN MEETING EMISSION STANDARDS; THE ENVIRONMENTAL PROTECTION AGENCY R AND D PROGRAM FOR WATER QUALITY CONTROL; NUCLEAR POWER AND THE ENVIRONMENT; EDGEWOOD ARSENAL'S TEST AREA ECOLOGY PROGRAM; SOLID WASTE DISPOSAL FROM THE STATE'S POINT OF VIEW; HANDLING AND INCINERATION OF PESTICIDES, PLASTICS, AND HAZARDOUS CHEMICALS; ADVANCED FLUID BED INCINERATOR. (U)

AD-708 559 13/2 15/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

ROCKY MOUNTAIN ARSENAL, DENVER, COLORADO, 5 OCTOBER-31 DECEMBER 1969. (U)

DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC BACKGROUND STUDY,
MAY 70 130P REGAN,GERALD F. (GALE, STEPHEN B. (PORTS,KENNETH N. (BARTELL,ROBERT P. (HESS,THOMAS L.)
REPT. NO. USAEHA-STUDY-21-005-70

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *COMBUSTION PRODUCTS), (*CHEMICAL WARFARE AGENTS, *DISPOSAL), (*MUSTARD AGENTS, DISPOSAL), PARTICLES, GB AGENT, MONITORS, NITROGEN OXIDES, SULFUR COMPOUNDS, DIOXIDES, CHLORIDES, HYDROCHLORIC ACID, QUALITY CONTROL, STANDARDS, MOUNTAINS, MILITARY FACILITIES, ARMY OPERATIONS (U)
IDENTIFIERS: *NITROGEN OXIDE(NO2), *AIR POLLUTION DETECTION, *HYDROGEN CHLORIDE, *SULFUR DIOXID, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

A NINE-STATION AIR MONITORING NETWORK WAS ESTABLISHED AT ROCKY MOUNTAIN ARSENAL TO OBTAIN PRESENT CONCENTRATIONS OF SELECTED POLLUTANTS (A BACKGROUND STUDY) AND TO MONITOR THE AIR QUALITY AT THE ARSENAL BOUNDARY DURING THE DEMILITARIZATION OF CERTAIN MUNITIONS. THIS BACKGROUND STUDY DETERMINED THE MAXIMUM AND MEAN CONCENTRATIONS OF NO2, SO2, TOTAL ACIDITY AS HCL, CL, AND SUSPENDED PARTICULATES. WIND SPEED AND DIRECTION WAS MEASURED AT EACH OF THE STATIONS. THE MAXIMUM AND MEAN CONCENTRATIONS WERE EVALUATED WITH RESPECT TO APPLICABLE REGULATIONS AND AIR QUALITY STANDARDS. FURTHER OBJECTIVES INCLUDED ESTABLISHING BURNING RATES, PROVIDING ON-THE-JOB TRAINING FOR ROCKY MOUNTAIN ARSENAL PERSONNEL, ASSISTING ARSENAL PERSONNEL IN DEVELOPING AN SOP ON MAINTENANCE OF THE NETWORK AND INCORPORATING ALERT PROCEDURES WITHIN THE SAMPLING NETWORK TO PRECLUDE THE POSSIBILITY OF EXCEEDING SPECIFIED LIMITS. THE AIR QUALITY AS DETERMINED DURING THIS SURVEY IS WELL WITHIN THE LIMITS OF THE AIR QUALITY STANDARDS. (AUTHOR) (U)

AD-680 423 6/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

MICROBIOLOGICAL METHODS OF TESTING THE ATMOSPHERE. (U)

JUL 68 133P VERSHIGORA,A. YU. I
REPT. NO. TRANS-567

UNCLASSIFIED REPORT
PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI ORDERING INSTRUCTIONS.
SUPPLEMENTARY NOTE: TRANS. OF MONO. METODY MIKROBIOLOGICHNYKH DOSLIDZHEN PAVITRYA. KIEV, 1960 133P.

DESCRIPTORS: (*BACTERIAL AEROSOLS, COLLECTING METHODS), BACTERIA, AIRBORNE, MICROORGANISMS, INSTRUMENTATION, ADHESION, SEDIMENTATION, FLUID FILTERS, PURIFICATION, INFECTIONS, DESIGN, EFFECTIVENESS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE BOOK PRESENTS BRIEF INFORMATION ON BACTERIAL AEROSOLS AND METHODS OF CONDUCTING EXPERIMENTS WITH THEM. IT CONTAINS EXACT DESCRIPTIONS OF NEW INSTRUMENTS USED FOR BACTERIOLOGICAL TESTING OF THE ATMOSPHERE, METHODS OF USING THEM AND EVALUATING INSTRUMENTS THAT ARE WIDELY APPLIED IN PRACTICE. A SUCCINCT EXPOSITION IS GIVEN OF THE BASIC RULES EMPLOYED IN THE METHODOLOGY OF BACTERIOLOGICAL TESTING OF THE AIR IN CLOSED SPACES AS WELL AS OUTDOORS. (AUTHOR) (U)

AD-917 105L 15/2 17/6 17/9
NAVAL WEAPONS LAB DAHLGREN VA

PRELIMINARY EVALUATION OF LIDAR TECHNIQUES FOR ADVANCE WARNING OF BIOLOGICAL THREATS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 74 31P HOYE,WALTER E. I
REPT. NO. NWL-TR-3005

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; FEB 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL WEAPONS LAB., DAHLGREN, VA. 22448.

DESCRIPTORS: (*BIOLOGICAL AEROSOLS, DETECTION), (*ULTRAVIOLET DETECTORS, BIOLOGICAL AEROSOLS), (*OPTICAL RADAR, BIOLOGICAL AEROSOLS), (*MATHEMATICAL MODELS, DETECTION), MICROORGANISMS, BACTERIAL AEROSOLS, FLUORESCENCE, ULTRAVIOLET SPECTRA, LIGHT SCATTERING, RAMAN SPECTRA, ATMOSPHERES, VISIBLE SPECTRA, TRYPTOPHAN, CHLOROPHYLLS, PROTEINS, NUCLEIC ACIDS, AMINO ACIDS, PEPTIDES, ESCHERICHIA COLI, ALGAE, MATHEMATICAL PREDICTION, EQUATIONS, QUANTUM EFFICIENCY, OPTICAL PROPERTIES (U)
IDENTIFIERS: *LIGHT DETECTION AND RANGING, LIDAR(LIGHT DETECTION AND RANGING) (U)

EQUATIONS HAVE BEEN DEVELOPED TO PREDICT THE CAPABILITIES OF LASER RADAR TECHNIQUES FOR DETECTION OF AIRBORNE MICROORGANISMS. IN ORDER TO DISCRIMINATE THREAT MICROORGANISMS FROM NORMAL ATMOSPHERIC CONTENTS, OPTICAL INTERACTIONS SUCH AS FLUORESCENCE AND RAMAN SCATTER MUST BE UTILIZED. SELECTED OPTICAL PROPERTIES OF MICROORGANISMS, MOSTLY BACTERIA, HAVE BEEN EXPLORED. PRELIMINARY EXPERIMENTAL RESULTS OF THE ULTRAVIOLET AND VISIBLE OPTICAL DENSITY, THE SPECTRAL FLUORESCENCE CHARACTERISTICS, AND THE FLUORESCENCE QUANTUM EFFICIENCY OF MICROORGANISMS ARE REPORTED. THE RESULTS ARE CORRECTED FOR INSTRUMENT BIASES AND, IN GENERAL, SHOW CHARACTERISTIC NUCLEIC ACID AND PROTEIN ABSORPTION IN THE ULTRAVIOLET WHILE TRYPTOPHAN AND CHLOROPHYLL FLUORESCENCE ARE PREDOMINANT. A PRELIMINARY VALUE OF 12 PERCENT WAS OBTAINED FOR THE TRYPTOPHAN QUANTUM EFFICIENCY OF ESCHERICHIA COLI.

AD-722 744 19/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME 1. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.
MAR 71 72P
REPT. NO. DDC-TAS-70-84-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 261.

DESCRIPTORS: (*GAS DETECTORS, *BIBLIOGRAPHIES), ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION, CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS DETECTORS COMPILED FROM THE DEFENSE DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS, ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-895 314 20/6 4/2
GENERAL ELECTRIC CO LTD WEMBLEY (ENGLAND)

PHOTOMETRIC PROPERTIES OF THE ATMOSPHERE: (INDUSTRIAL HAZE). (U)

OCT 42 31P BEGGS,S. S. MONKS,G. K. MORSE,J. W. WALDRAM,J. M. I
REPT. NO. 6085

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: ALSO AVAILABLE AS MINISTRY OF HOME SECURITY, LONDON (ENGLAND). REPT. NO. R.C.(G) 30. SEE ALSO REPT. NO. 6068.

DESCRIPTORS: (*HAZE, *LIGHT TRANSMISSION), MEASUREMENT, PHOTOMETERS, ABSORPTION, SCATTERING, ALTITUDE, ATMOSPHERES, METEOROLOGICAL BALLOONS, AIR POLLUTION, VISIBILITY, ATTENUATION, SMOKE, WASTES(INDUSTRIAL), GREAT BRITAIN (U)
IDENTIFIERS: DAY (U)

THIS REPORT RECORDS IN DETAIL EXPERIMENTS IN INDUSTRIAL HAZE MADE FROM A BALLOON IN BIRMINGHAM AND COVENTRY. MEASUREMENTS HAVE BEEN MADE OF THE DISTRIBUTION OF SCATTERED LIGHT, AND ALSO AN ESTIMATE OF THE ABSORPTION COEFFICIENT AT VARIOUS HEIGHTS AND THE AIR-GROUND TRANSMISSION TO VARIOUS HEIGHTS UP TO 2000 OR 2500 FT. (U)

AD-907 254L 17/7 20/5
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ADVANCED SENSORS DIRECTORATE

A COMPUTER PROGRAM TO SIMULATE LASER TERMINAL HOMING SYSTEMS ENVIRONMENTAL EFFECTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 72 34P GOWINS,G. E. IHAFF,W. T.

REPT. NO. RE-72-13
PROJ: 0A-1-M-242301-A-117

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 18 DEC 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, ARMY MISSILE COMMAND, ATTN: AMSMI-RE, REDSTONE ARSENAL, ALA. 35809.

DESCRIPTORS: (*COMPUTER PROGRAMS, TERMINAL GUIDANCE), (*LASERS, LIGHT HOMING), ATMOSPHERES, SIMULATION, MATHEMATICAL MODELS, LUMINESCENCE, ENERGY, TARGETS, REFLECTIVITY, BACKGROUND, AIR POLLUTION, SMOKE, PLANTS(BOTANY), AEROSOLS, SCATTERING, POWER, ATTENUATION, VELOCITY (U)
IDENTIFIERS: LTHS COMPUTER PROGRAM (U)

LTHS IS THE GENERIC DESIGNATION FOR A COMPUTER PROGRAM DESIGNED FOR THE COMPUTATION OF THE FLOW OF ENERGY FROM A LASER THROUGH THE ATMOSPHERE; THE INTERCEPTION OF THE ENERGY BY AEROSOLS, BACKGROUNDS, FOREGROUNDS, AND TARGETS; AND THE TRANSMISSION BACK THROUGH THE ATMOSPHERE TO A GUIDANCE SENSOR. INPUTS TO THE PROGRAM INCLUDE LASER RADIANT CHARACTERISTICS; THE SHAPE, REFLECTIVITY, AND ORIENTATION OF TARGETS; AND DISCRETE AMOUNTS OF ATMOSPHERIC CONTAMINANTS SUCH AS SMOKE, FOG, DUST, AND BACKGROUND AND FOREGROUND SCATTERERS. OUTPUTS FROM THE PROGRAM REPRESENT THE POWER INTENSITY AVAILABLE AT THE DETECTOR LOCATION, POWER INCIDENT ON THE TERMINAL GUIDANCE POINT, FALSE TARGET LOCATIONS, AND THE SCATTERED INTENSITY FROM FALSE TARGETS SUCH AS SMOKE AND FOILAGE. SPEED, FLEXIBILITY, AND EASE OF USE, AS WELL AS THE ABILITY TO MOCK-UP ANY DIRECT-BEAM LASER RADIATION PROBLEM, CONTRIBUTE TO THE UTILITY OF THE PROGRAM. (AUTHOR) (U)

72

AD-907 172L 13/2 20/5
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

USING THE LASER FOR ENVIRONMENTAL POLLUTION CONTROL. (DER LASER IM EINSATZ GEGEN UMWELTVERSCHMUTZUNG). (U)

AUG 72 3P
REPT. NO. FSTC-HT-23-1920-72

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM POLIZER TECHNIK VERKEHR V16 N12 DEC 71, BY S. COSTELLO.

DESCRIPTORS: (*AIR POLLUTION, MONITORS), (*INFRARED LASERS, MONITORS), INFRARED DETECTORS, LASERS, PHOTODIODES, SMOKE, CLOUDS, DUST, GERMANIUM, RANGE(DISTANCE), WEST GERMANY, WASTES(INDUSTRIAL), PULSES (U)
IDENTIFIERS: TRANSLATIONS (U)

WHILE THE TECHNOLOGY OF TODAY IS STILL IN AN EARLY DEVELOPMENT STAGE, POLLUTION OF THE EARTH AND SKY, WITH ITS HARMFUL AND WASTE PRODUCTS, OCCURS. ELECTRO-TECHNOLOGY HAS PAVED THE WAY FOR A CLEANER ENVIRONMENT. ELECTRICITY IS A RESIDUE-FREE ENERGY SOURCE. WITH VARIOUS MEASUREMENT AND CONTROL DEVICES, ELECTRICITY ALSO HELPS REDUCE SOLID, LIQUID HAS GASEOUS WASTE PRODUCTS OF COMBUSTION AND PRODUCTION CYCLES. WHEREVER SMOKE CANNOT BE AVOIDED, THE AIR POLLUTION HAS TO BE MONITORED. IN A SIEMENS RESEARCH LABORATORY, A DEVICE HAS BEEN DEVELOPED WHICH DETECTS THE POSITION AND DENSITY OF SMOKE CLOUDS OVER A RANGE OF SEVERAL KILOMETERS. THIS DEVICE IS A GIANT PULSE LASER. (U)

AD-904 829L 13/2 13/10
NAVAL SHIP ENGINEERING CENTER PHILADELPHIA PA PHILADELPHIA DIV

AIR POLLUTION RESULTING FROM DISTILLATE FUEL COMBUSTION. (U)

DESCRIPTIVE NOTE: FINAL EVALUATION REPT.,
OCT 72 121P GORIN,N. H. ;DIXON,E. ;
REPT. NO. NAVSECPHILADIV-A-1327

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 19 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL SHIP ENGINEERING CENTER, HYATTSVILLE, MD. 20782.
SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES: ALL DDC REPRODUCTIONS WILL BE IN BLACK AND WHITE.

DESCRIPTORS: (*AIR POLLUTION, WASTE GASES), SMOKE, CARBON DIOXIDE, NITROGEN OXIDES, OXYGEN, HYDROCARBONS, COMBUSTION, FUELS, SULFUR COMPOUNDS, DIOXIDES, BOILERS, DESTROYERS, AIRCRAFT CARRIERS, STEAM, CONTROL, DISTILLATION, STEAM POWER PLANTS (U)
IDENTIFIERS: DISTILLATES, FUELS, *ABATEMENT, *POLLUTION (U)

A SOURCE EMISSION MONITOR (SEM) WAS CONSTRUCTED FOR MEASURING GASEOUS EMISSION PRODUCTS OF NAVY DISTILLATE (ND) COMBUSTION IN THE FLUE GAS OF NAVAL TEST STEAM GENERATORS. THE PRODUCTS STUDIED WERE SMOKE, SO2, NO(X), CO, HC, CO2 AND O2. THE INSTRUMENTATION WAS TRANSPORTABLE AND DESIGNED TO COLLECT AIR POLLUTION DATA FROM FOUR STEAM GENERATORS AT VARIOUS LOCATIONS. THREE OF THE 9 UNITS MONITORED, WERE NOT STEAMED SPECIFICALLY FOR AIR POLLUTION PURPOSES, BUT WERE SIMULTANEOUSLY EXAMINED DURING OTHER TEST PROGRAMS PROCEEDING WITH THE AIR POLLUTION STUDIES. THESE INITIAL STEAM GENERATORS MONITORED, INCLUDED TWO DESTROYER BOILERS, DDG-15 AND DE-1040, AND ONE CARRIER BOILER, CVA-63. THESE STEAM GENERATOR TESTS WERE UNCONTROLLED AND POLLUTION DATA WAS SPARSE AND IN MOST INSTANCES, INCOMPLETE.

AD-903 255L 13/2 21/5
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

AIR POLLUTION SOURCE EMISSIONS: TEST OF A JET ENGINE TEST CELL AT NORTH ISLAND NAVAL AIR STATION, SAN DIEGO, CALIFORNIA. (U)

DESCRIPTIVE NOTE: ENVIRONMENTAL PROTECTION DATA BASE REPT.,
APR 72 7P CULBERTSON,THOMAS L. ;
REPT. NO. NCEL-EPDB-72-006

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL CIVIL ENGINEERING LAB. PORT HUENEME, CALIF. 93043.

DESCRIPTORS: (*AIR POLLUTION, *JET ENGINES), (*GAS TURBINES, AIR POLLUTION), EXHAUST GASES, SMOKE, PARTICLES, JET ENGINE FUELS, SAMPLING, INSTRUMENTATION, GAS ANALYSIS, SULFUR COMPOUNDS, NITROGEN OXIDES, HYDROCARBONS, CAPTIVE TESTS, CARBON DIOXIDE, CARBON MONOXIDE, OXYGEN, TEST METHODS, TEST FACILITIES, CALIFORNIA (U)
IDENTIFIERS: SAN DIEGO(CALIFORNIA) (U)

WITH THE DESIGNATION OF THE NORTH ISLAND NAVAL AIR STATION (NAS) AND THE NAVAL AIR REWORK FACILITY (NARF) AT SAN DIEGO AS A PILOT TEST SITE, THE PERSONNEL OF NARF HAVE BEEN DEFINING QUALITATIVELY AND QUANTITATIVELY THE LEVELS OF AIR, LAND, AND WATER CONTAMINANTS GENERATED BY AIR TRAFFIC, AIRCRAFT ENGINE TESTING AND THE MAINTENANCE AND REBUILDING OF AIRCRAFT. THE TEST CELL SELECTED, EXHAUSTS INTO A LARGE CYLINDRICAL MUFFLER AND THEN INTO A 93 INCH CIRCULAR DUCT WHICH, AFTER A 90 DEGREE TURN EMITS VERTICALLY INTO THE ATMOSPHERE. THE ENGINE OPERATED DURING THE SAMPLING WAS A T64 GE-413. THE FUEL USED DURING THIS TEST WAS JP 5. (U)

AD-853 174 15/2
IBM FEDERAL SYSTEMS DIV GAITHERSBURG MD

AEROSOLIZED MICROORGANISM FLUORESCENCE STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 69 108P
CONTRACT: DAAA13-68-C-0180

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*LASERS, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, ULTRAVIOLET DETECTORS), FLUORESCENCE, AEROSOLS, ESCHERICHIA COLI, BACILLUS SUBTILIS, NEODYMIUM (U)
IDENTIFIERS: NEODYMIUM GLASS LASERS (U)

THE MIDAR (MICROORGANISM DETECTION AND RANGING) CONCEPT OF PERFORMING LASER DETECTION AND RANGING OF A DISSEMINATED AEROSOL HAS BEEN EVALUATED USING THE AEROSOL FLUORESCENCE YIELD DATA. RESULTS ARE PRESENTED AS AN OPTICAL RECEIVER VOLTAGE SIGNAL-TO-NOISE RATIO VS. RANGE FOR VARIOUS CONCENTRATIONS OF E. COLI AND B. SUBTILIS. THE MINIMUM DENSITY OF MICROORGANISMS DETECTABLE AT A GIVEN DISTANCE IS INVERSELY PROPORTIONAL TO THE LASER TRANSMITTER PEAK POWER. SINCE PEAK POWERS OF 1 MW OR MORE MAY REASONABLY BE ACHIEVED AT 266 NM, AT LEAST AN ORDER OF MAGNITUDE IMPROVEMENT IN THE DETECTION PERFORMANCE MAY BE ANTICIPATED. LARGER COLLECTOR OPTICS AND REDUCED RANGE RESOLUTION CAN ALSO PROVIDE INCREASE IN PERFORMANCE. SINCE THE SCATTERED BACKGROUND LIMITATION PRESENT WITH CONVENTIONAL LIGHT SOURCES CANNOT BE OVERCOME BY INCREASED TRANSMITTER PEAK POWER OR RECEIVER SENSITIVITY, FURTHER INVESTIGATIONS OF NATURAL AND TARGET AEROSOLS SHOULD BE BASED ON LASER-INDUCED FLUORESCENCE. (AUTHOR) (U)

AD-919 520 13/10 13/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

POLLUTION ABATEMENT AND CONTROL: FUNNEL EMISSIONS FROM CANADIAN FORCES SHIPS. (CTS/DRB TASK NO. DMES 08). (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE. NOV 73 17P WEAVER,R. S. (CARPENTER,W. C. I
REPT. NO. DRES-TN-332

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*FLUE GASES, *SHIPS), (*AIR POLLUTION, FLUE GASES), EMISSION, POLLUTANTS, BOILERS, DISTILLATES, FUELS, DIESEL FUELS, COMBUSTION PRODUCTS, EXHAUST GASES, DIOXIDES, SULFUR COMPOUNDS, PARTICULATES, SMOKE, OPACITY, CANADA, UNITED STATES, STANDARDS, SPECIFICATIONS (U)

AIR POLLUTANTS EMITTED FROM CANADIAN FORCES SHIPS' FUNNELS DURING BOILER FLASH-UP WERE MEASURED, WITH SPECIAL REFERENCE TO SULFUR DIOXIDE, PARTICULATES AND VISIBLE SMOKE. A NUMBER OF LEGALLY ESTABLISHED LIMITS FOR THESE POLLUTANTS WERE TABULATED AFTER COLLECTING INFORMATION FROM CANADIAN AND AMERICAN PORT CITIES AND SEASIDE STATES. COMPARISON OF THE MEASURED AIR POLLUTANTS WITH THE VARIOUS LEGAL REQUIREMENTS INDICATED THAT THE QUANTITIES OF AIR POLLUTANTS EMITTED DURING FLASH-UP OF CANADIAN FORCES SHIPS' BOILERS ARE LESS THAN ALL KNOWN REGULATORY STANDARDS. (U)

AD-718 769 21/5 13/2 21/2
AVCO LYCOMING DIV STRATFORD CONN

T53 AND T55 GAS TURBINE COMBUSTION AND ENGINE EXHAUST EMISSION MEASUREMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-FEB 73,
DEC 73 222P PURINS,PHILIP M. !DOYLE, BRIAN W. !
REPT. NO. LYC-73-8
CONTRACT: DAAJ02-72-C-0102
PROJ: DA-1-G-162207-AA-71
TASK: 1-G-162207-AA-7102
MONITOR: USAAMRDL TR-73-47

UNCLASSIFIED REPORT

DESCRIPTORS: *GAS TURBINES, *EXHAUST GASES, SMOKE, HYDROCARBONS, COMBUSTION CHAMBERS, CARBON MONOXIDE, NITROGEN OXIDES, CARBON DIOXIDE, PROFILES, AIR POLLUTION, GAS ANALYSIS, POWER, LABORATORY TESTS, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: T-53 ENGINES, T-55 ENGINES, T-53-L-13-A ENGINES, T-55-L-11A ENGINES, AIR FUEL RATIO, COMBUSTION EFFICIENCY (U)

THE PURPOSE OF THE PRESENT TESTS WAS TO EVALUATE GAS TURBINE ENGINES AND COMBUSTORS FROM A POLLUTANT STANDPOINT AND COMPARE THE RESULTS WITH THE CURRENT STATE OF THE ART. EXTENSIVE TESTS WERE MADE TO DETERMINE THE GASEOUS EXHAUST EMISSION CHARACTERISTICS OF BOTH A T53-L-13A AND A T55-L-11A LYCOMING GAS TURBINE ENGINE. IN ADDITION, THE COMBUSTOR FOR EACH ENGINE WAS TESTED SEPARATELY UNDER LABORATORY CONDITIONS SIMULATING ENGINE OPERATION, WITH SIMILAR MEASUREMENTS OF GASEOUS EMISSIONS. DATA WERE ANALYZED FOR THE FULL RANGE OF ENGINE POWER OPERATION FOR CO, HYDROCARBONS, NO, NOX, AND CO2, AND FOR SMOKE. SAMPLES WERE TAKEN WITH SIX-POINT TRAVERSING PROBES, WITH A SINGLE-POINT TRAVERSING PROBE, AND WITH MULTIORIFICE AVERAGING-TYPE PROBES. EXTENSIVE PROFILE DATA PLOTTED ALONG DIAMETERS OF THE ENGINE EXHAUST, AROUND THE CIRCUMFERENCE OF THE COMBUSTOR EXIT PLANE, AND AS ISOPLETH MAPS ARE PRESENTED. (U)

AD-775 094 21/5 21/2 13/2
CALIFORNIA UNIV BERKELEY DEPT OF MECHANICAL ENGINEERING

FACTORS CONTROLLING POLLUTANT EMISSIONS FROM GAS TURBINE ENGINES. (U)

74 15P SAWYER,ROBERT F. !CERNANSKY, NICHOLAS P. !OPPENHEIM,ANTONI K. !
CONTRACT: AF-AFOSR-2299-72, AF-AFOSR-2200-72
PROJ: AF-9750
TASK: 975002
MONITOR: AFOSR TR-74-0192

UNCLASSIFIED REPORT

DESCRIPTORS: *GAS TURBINES, *AIR POLLUTION, SMOKE, ALDEHYDES, HYDROCARBONS, COMBUSTION, EXHAUST GASES, AIRCRAFT ENGINES, CARBON MONOXIDE, PARTICULATES, NITROGEN OXIDES, OPERATION (U)

PRIMARY POLLUTANTS EMITTED BY AIRCRAFT GAS TURBINE ENGINES ARE CARBON MONOXIDE, HYDROCARBONS, ALDEHYDES, SMOKE, PARTICULATES, AND NITRIC OXIDE. FACTORS CONTROLLING EMISSIONS OF THESE POLLUTANTS ARE ANALYZED ON THE BASIS OF AIRCRAFT ENGINE EXHAUST COMPOSITION AND LABORATORY STUDIES OF GAS TURBINE COMBUSTION PROCESSES. MOREOVER, AN ANALYTICAL PREDICTION OF THE EFFECT OF AIRCRAFT OPERATING PARAMETERS ON THE EMISSION OF NITRIC OXIDE IS ALSO GIVEN. OPERATIONAL CONDITIONS AND ENGINE PARAMETERS SUCH AS AMBIENT TEMPERATURE, PRESSURE, AND HUMIDITY, FLIGHT ALTITUDE, FLIGHT MACH NUMBER, WATER INJECTION, FUEL PROPERTIES, AND COMBUSTOR CHARACTERISTICS HAVE BEEN STUDIED ANALYTICALLY, YIELDING RATIONAL CRITERIA FOR THE PREDICTION OF THEIR EFFECT ON THE EMISSION OF NITRIC OXIDE. (MODIFIED AUTHOR ABSTRACT) (U)

AD-754 154 7/4 13/2
YALE UNIV NEW HAVEN CONN DEPT OF ENGINEERING AND APPLIED SCIENCE

GAINS IN DETECTING POLLUTION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
72 5P CHANG,RICHARD K. IFOUCHE,
DANIEL G. I
REPT. NO. TR-10
CONTRACT: N00014-67-A-0097-0005
PROJ: NR-104-203

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN LASER FOCUS, V8 N12 P93-95 DEC 72.
SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL SCIENCE FOUNDATION.

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS), (*RAMAN SPECTROSCOPY, AIR POLLUTION), REVIEWS, INFRARED LASERS, ATTENUATION, IODINE, NITROGEN OXIDES, INFRARED DETECTORS, RESONANCE, FLUORESCENCE (U)
IDENTIFIERS: LASER INDUCED FLUORESCENCE, LASER SPECTROSCOPY, *AIR POLLUTION DETECTION, REMOTE SENSING, SMOKE, FLUE GASES (U)

THE STATUS OF THE USE OF RAMAN BACKSCATTERING FOR AIR POLLUTION MONITORING IS BRIEFLY REVIEWED. TWO MAJOR IMPROVEMENTS ARE REQUIRED BEFORE THE RAMAN TECHNIQUE WILL BE USEFUL. FIRST, THE SCATTERING EFFICIENCY MUST BE ENHANCED, EITHER BY THE RESONANCE RAMAN AND/OR THE RESONANCE FLUORESCENCE PROCESSES. LABORATORY RESULTS ON I2 AND NO2 ARE STATED. SECOND, THE DETECTION EFFICIENCY MUST BE IMPROVED. A PARALLEL-CHANNEL DETECTION SCHEME IS PROPOSED, WHICH HAS CONSIDERABLY MORE DATA GATHERING EFFICIENCY THAN THE CONVENTIONAL SINGLE-CHANNEL DETECTION SCHEME. (AUTHOR) (U)

AD-753 095 13/2 21/5 21/7
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB OHIO

ASSESSMENT OF POLLUTANT MEASUREMENT AND CONTROL GOALS FOR MILITARY AIRCRAFT ENGINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 72 71P BLAZOWSKI,WILLIAM S. I
HENDERSON,ROBERT E. I
REPT. NO. AFAPL-TR-72-102
PROJ: AF-3048, AF-3066
TASK: 304805, 306605

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*AIRCRAFT ENGINES, *EXHAUST GASES), REVIEWS, AIR FORCE, SPECIFICATIONS, STANDARDS, GAS ANALYSIS, SPARK IGNITION ENGINES, JET ENGINES, AFTERBURNERS, PARTICLES, CARBON MONOXIDE, HYDROCARBONS, NITROGEN OXIDES, PERFORMANCE(ENGINEERING), MILITARY REQUIREMENTS (U)
IDENTIFIERS: AIR POLLUTION STANDARDS, *AIRCRAFT EXHAUST, SMOKE, JET ENGINE EXHAUST (U)

THE PROBLEM OF MASS EMISSSIONS FROM AIRCRAFT GAS TURBINE ENGINES IS BRIEFLY REVIEWED AND THE ASPECTS OF THIS PROBLEM WHICH ARE UNIQUE TO MILITARY AIRCRAFT OPERATION ARE DISCUSSED. POLLUTANT MEASUREMENT TECHNOLOGY AND THE EXISTING DATA BASE ARE SUMMARIZED AND CANDIDATE CONTROL TECHNIQUES ARE IDENTIFIED. PROPOSED ENVIRONMENTAL PROTECTION AGENCY REGULATIONS FOR AIRCRAFT ENGINE EMISSIONS ARE EXAMINED IN TERMS OF THEIR IMPACT ON AND APPLICATION TO MILITARY ENGINES. IT IS CONCLUDED THAT THE SPECIAL CONSIDERATIONS, BOTH PERFORMANCE AND OTHERWISE, WHICH MUST BE AFFORDED TO MILITARY AIRCRAFT PROHIBIT DIRECT APPLICATION OF THE EPA REGULATIONS. THE REPORT CONCERNS AIR FORCE EMISSION LIMITATION GOALS ESTABLISHED IN LIGHT OF THESE EFFORTS. MAXIMUM ALLOWABLE IDLE COMBUSTION INEFFICIENCY, OXIDE OF NITROGEN EMISSION (LBM/1000 LBM FUEL), AND SMOKE NUMBER ARE SPECIFIED. THE RATIONALE BEHIND USING THESE PARAMETERS, AND THE MEANS BY WHICH THE NUMERICAL GOALS WERE DERIVED ARE DISCUSSED. (AUTHOR) (U)

AD-769 291 13/2
SCOTT RESEARCH LABS INC PLUMSTEADVILLE PA

A STUDY OF STACK EMISSIONS FROM COAST GUARD CUTTERS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 73 164P SOUZA,ANTHONY F. I
CONTRACT: DOT-TSC-429
MONITOR: USCG,TSC D-13-73,USCG-73-I

UNCLASSIFIED REPORT

DESCRIPTORS: (*EXHAUST EMISSIONS, *BOATS), (*COAST GUARD RESEARCH, EXHAUST EMISSIONS), (*AIR POLLUTION, BOATS), POLLUTANTS, HYDROCARBONS, DIESEL ENGINES, CARBON MONOXIDE, CARBON DIOXIDE, PARTICULATES, SMOKE, NITROGEN OXIDES, COMPUTER PROGRAMMING, SAMPLING (U)
IDENTIFIERS: COAST GUARD CUTTERS (U)

THE GASEOUS AND PARTICULATE EMISSIONS FROM 19 CUTTERS AND BOATS IN THE FIRST COAST GUARD DISTRICT HAVE BEEN MEASURED UNDER TYPICAL OPERATING CONDITIONS. THESE MEASUREMENTS WERE PERFORMED ON 67 DIESEL ENGINES AND BOILERS CONFIGURED AS MAIN PROPULSION UNITS, SHIP-SERVICE GENERATORS AND HOTEL-SERVICE BOILERS. THE DIESEL ENGINES VARIED IN SIZE FROM TWO-CYLINDER, NATURALLY ASPIRATED, 35 H.P. UNITS TO 3600 H.P. TURBO-CHARGED UNITS. THE GASEOUS EMISSION CONCENTRATIONS MEASURED WERE CARBON MONOXIDE, CARBON DIOXIDE, TOTAL HYDROCARBONS, AND OXIDES OF NITROGEN. PARTICULATE EMISSION RATES BY GRAVIMETRIC TECHNIQUE AS WELL AS SMOKE LEVELS WERE ALSO DOCUMENTED. THESE MEASURED CONCENTRATIONS WERE REDUCED TO MASS EMISSION RATES BY APPROPRIATE COMPUTER PROGRAMS. (AUTHOR) (U)

AD-763 119 13/2 21/5
UNITED AIRCRAFT RESEARCH LABS EAST HARTFORD CONN

ANALYSIS OF JET ENGINE TEST CELL POLLUTION ABATEMENT METHODS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 21 FEB 72-21 FEB 73,
MAY 73 230P ROBSON,F. L. IKESTEN,A.
S. ILESSARD,R. D. I
CONTRACT: F29601-72-C-0049
PROJ: AF-683M
MONITOR: AFWL TR-73-18

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET ENGINES, *EXHAUST GASES), (*AIR POLLUTION, JET ENGINES), (*TEST FACILITIES, AIR POLLUTION), CAPTIVE TESTS, COST EFFECTIVENESS, GAS FLOW, TEST METHODS, PARTICLES, NITROGEN OXIDES, AIRCRAFT ENGINES, FUEL ADDITIVES, METALORGANIC COMPOUNDS, JET ENGINE NOISE (U)
IDENTIFIERS: NOISE REDUCTION, *AIR POLLUTION, *CONTROL, AIR POLLUTION CONTROL EQUIPMENT, SMOKE, STATIC TESTS, *EMISSION (U)

IN ORDER TO ASCERTAIN WHAT METHODS OF EFFLUENT TREATMENT WOULD BE APPLICABLE TO JET ENGINE TEST CELLS, A STUDY WAS UNDERTAKEN TO ASSESS CURRENT AND PROJECTED EXHAUST GAS TREATMENT TECHNOLOGY AND TO ESTABLISH THAT TECHNOLOGY WHICH RESULTS IN THE MOST EFFECTIVE CLEANUP PER DOLLAR. EMISSION FACTOR DATA FOR THE MOST PREVALENT AIR FORCE ENGINES WERE GATHERED TO DETERMINE WHAT LEVELS OF POLLUTANTS WERE TO BE DEALT WITH. A THEORETICAL MODEL OF A TEST CELL AUGMENTOR TUBE WITH LIQUID INJECTION WAS DEVELOPED TO AID IN ESTIMATING TOTAL SYSTEM FLOW RATES AS A FUNCTION OF ENGINE OPERATING PARAMETERS. THE AIR FORCE TEST CELL EMISSION REDUCTION PROGRAM CAN BE CHARACTERIZED AS HAVING THREE GOALS WHICH ARE DISCUSSED. THE FIRST OR IMMEDIATE GOAL IS ONE OF REDUCING VISIBLE EMISSIONS. THE SECOND OR NEAR-TERM GOAL INVOLVES MEETING PARTICULATE MASS CRITERIA SUCH AS MIGHT BE PROMULGATED BY THE ENVIRONMENTAL PROTECTION AGENCY. THE THIRD OR FUTURE GOAL WOULD BE CONCERNED WITH MEETING THE MASS EMISSION REGULATIONS FOR NOX. (MODIFIED AUTHOR ABSTRACT) (U)

AD-726 249 13/2
IIT RESEARCH INST CHICAGO ILL

STUDY OF VISIBLE EXHAUST SMOKE FROM AIRCRAFT JET ENGINES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 68P STOCKHAM,JOHN BETZ,HOWARD I
CONTRACT: DOT-FA69WA-2208
MONITOR: FAA-NA,FAA-RD 71-24,71-23

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*AIRCRAFT ENGINES, AIR POLLUTION), (*JET ENGINES, AIR POLLUTION), (*EXHAUST GASES, VISIBILITY), PARTICLES, PHOTOGRAPHY, MATHEMATICAL MODELS, LIGHT TRANSMISSION, SCATTERING, TURBOJET ENGINES (U)
IDENTIFIERS: LIGHT SCATTERING, *SMOKE NUMBER, SMOKE, *JET ENGINE EXHAUST (U)

THE OBJECTIVE OF THIS STUDY WAS TO RELATE THE VISIBILITY OF INFLIGHT JET EXHAUST TO THE SAE SMOKE NUMBER. A METHOD BASED ON PHOTOGRAPHIC PHOTOMETRY WAS DEVELOPED FOR MEASURING THE OPTICAL DENSITY OF SMOKE PLUMES. THIS METHOD WAS RELATED TO VISIBILITY AND TO THE SMOKE NUMBER THROUGH TRANSMISSOMETER MEASUREMENTS AND VISIBILITY THEORY. A PORTABLE TRANSMISSOMETER, CAPABLE OF OPERATING OVER A WIDE RANGE OF OPTICAL PATH LENGTHS AND UNDER VARYING AMBIENT LIGHT CONDITIONS WAS FABRICATED FOR USE ON THIS STUDY. THE MATHEMATICAL EXPRESSION RELATING THE TRANSMISSION MEASUREMENTS TO THE SMOKE NUMBER WAS DERIVED. LIMINAL VISIBILITY REQUIREMENTS OF SMOKE TRAILS, DEVELOPED FROM LIGHT SCATTERING THEORY, CORRELATED WITH ACTUAL VISUAL OBSERVATIONS AND THE TRANSMISSOMETER AND PHOTOMETRY MEASUREMENTS. TEST RESULTS, WITH THE ENGINES INVESTIGATED, INDICATE THAT SAE SMOKE NUMBERS BELOW 23 WERE ASSOCIATED WITH INVISIBLE EXHAUST PLUMES. SAMPLES OF THE EXHAUST SMOKE SHOWED THE PARTICLES TO BE COMPOSED OF LACY AGGLOMERATES. AT THE NOZZLE, THE GEOMETRIC MEDIAN PARTICLE DIAMETER WAS 0.052 MICROMETERS. AT A DISTANCE OF 10 NOZZLE DIAMETERS THE GEOMETRIC MEDIAN PARTICLE DIAMETER WAS 0.13 MICROMETER AT CRUISE CONDITION. (AUTHOR) (U)

AD-747 885 13/2 21/2
NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATLANTIC CITY N J

RELATIONSHIP BETWEEN THE SAE SMOKE NUMBER AND JET AIRCRAFT SMOKE VISIBILITY. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1970-1971,
DEC 71 29P SLUSHER,GERALD R. I
REPT. NO. FAA-NA-71-25
PROJ: FAA-502-306-02X
MONITOR: FAA-RD 71-23

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*EXHAUST GASES, VISIBILITY), (*AIRCRAFT ENGINES, AIR POLLUTION), (*JET ENGINES, AIR POLLUTION), PARTICLES, LIGHT TRANSMISSION, SCATTERING, GAS TURBINES, DENSITY, MEASUREMENT (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, *AIRCRAFT EXHAUST, PLUMES, *SMOKE NUMBER, SMOKE, *JET ENGINE EXHAUST (U)

A METHOD WAS DEVELOPED USING THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) SMOKE NUMBERS FOR CALCULATING THE EXHAUST SMOKE TRANSMISSION FOR TURBINE ENGINES, NUMBER OF PLUME PATHS, AND VIEWING ANGLES. CRITERIA WERE DEVELOPED RELATING THE SAE SMOKE NUMBER TO ENGINE AIRFLOW AND THUS TO ENGINE SIZE FOR CONDITIONS OF VISIBLE AND INVISIBLE SMOKE. TRANSMISSION OF MULTIPLE PLUMES WAS CALCULATED AND IS PRESENTED. (AUTHOR) (U)

AD-722 632 21/2 13/2
SOUTHWEST RESEARCH INST SAN ANTONIO TEX

BASELINE EXHAUST EMISSIONS FROM U. S. ARMY M542 LDS 465 POWERED FIVE-TON TRUCKS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 69 95P SPRINGER,KARL J. I
REPT. NO. SWRI-AR-690
CONTRACT: DAAD05-67-C-0341
PROJ: SWRI-08-2073-03

UNCLASSIFIED REPORT

DESCRIPTORS: (*DIESEL ENGINES, *EXHAUST GASES), (*AIR POLLUTION, EXHAUST GASES), (*ODORS, EXHAUST GASES), CARGO VEHICLES, SMOKE, HYDROCARBONS, CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES, SULFUR COMPOUNDS, ALDEHYDES, TEST METHODS (U)
IDENTIFIERS: *MOTOR TRUCKS, *SMOKE ABATEMENT, SULFUR DIOXIDE, *DIESEL ENGINE EXHAUST (U)

BASELINE EXHAUST EMISSIONS DATA WERE OBTAINED AS PART OF A 20,000-MI TEST OF LUBE OILS IN FOUR M542 FIVE-TON ARMY TRUCKS POWERED BY THE LDS 465 TURBOCHARGED, FOUR-CYCLE, COMPRESSION IGNITION ENGINE. THESE EMISSIONS INCLUDED ODOR, SMOKE AND CHEMICAL/INSTRUMENTAL MEASUREMENTS OF TOTAL UNBURNED HYDROCARBONS, CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN, NITRIC OXIDE, TOTAL ALIPHATIC ALDEHYDES, FORMALDEHYDE, ACROLEIN AND SULFUR DIOXIDE USING THE LATEST TECHNIQUES AVAILABLE. POWER CHECKS AS WELL AS EMISSIONS WERE OBTAINED AT THE BEGINNING, END, AND AT ABOUT 6,500 AND 12,000 MI DURATION. THE EFFECTS OF VEHICLE OPERATING CONDITION AND TEST MILEAGE ARE PRESENTED AS PART OF THE ANALYSIS OF THE RESULTS. TYPICAL DATA FOR TWO WIDELY USED, COMMERCIAL TRUCK-TRACTORS POWERED BY FOUR-CYCLE, NATURALLY ASPIRATED AND TURBOCHARGED ENGINES ARE INDICATED TO PLACE THE MILITARY TRUCK EMISSIONS IN PERSPECTIVE. LIMITED BACK-TO-BACK TYPE OPERATION OF TWO VEHICLES ON A COMMERCIAL BARIUM SMOKE SUPPRESSANT FUEL ADDITIVE WAS CONDUCTED PERIODICALLY AND THE CONSTANT AND TRANSIENT SMOKE RESULTS ARE PRESENTED. IN ADDITION TO SUMMARY AND CONCLUSIONS, RECOMMENDATIONS ARE MADE TO LEARN MORE ABOUT EXHAUST EMISSIONS FROM VEHICLES IN THE CURRENT AND FUTURE ARMY INVENTORY. (AUTHOR) (U)

AD-849 739 7/2 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

THE SPECIFIC DETERMINATION OF AIR-BORNE HYDROGEN CHLORIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 68-MAR 69,
MAR 69 29P DEE,L. A. (CITRO,M. F. I
ZIEGE,G. E. I
REPT. NO. AFRPL-TR-69-71
PROJ: AF-3059

UNCLASSIFIED REPORT

DESCRIPTORS: (*HYDROCHLORIC ACID, *GAS ANALYSIS), (*SOLID ROCKET PROPELLANTS, EXHAUST GASES), (*EXHAUST GASES, AIR POLLUTION), QUANTITATIVE ANALYSIS, SILVER COMPOUNDS, NITRATES (U)
IDENTIFIERS: HYDROGEN CHLORIDE, SILVER NITRAT, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

A NUMBER OF TECHNIQUES POTENTIALLY APPLICABLE TO THE QUANTITATIVE MEASUREMENT OF GASEOUS HYDROGEN CHLORIDE WERE SURVEYED. SELECTION OF THE DEVICE DESCRIBED HEREIN, A SMALL GLASS TUBE FILLED WITH AGNO3-COATED PARTICLES, WAS BASED ON ITS UNIQUE SPECIFICITY, SIMPLICITY, AND SENSITIVITY. LABORATORY EVALUATION OF THIS DEVICE UNDER VARIED SIMULATED ATMOSPHERIC CONDITIONS INCLUDING HUMIDITY AND CHEMICAL INTERFERENCE (E.G., NO2, NACL PARTICLES) INDICATES THAT IT MAY BE USEFUL FOR FIELD MEASUREMENT OF AIR-BORNE HCL RESULTING FROM THE COMBUSTION OF LARGE QUANTITIES OF SOLID PROPELLANT. (AUTHOR) (U)

AD-776 938 13/2 7/4
MONSANTO RESEARCH CORP DAYTON OHIO DAYTON LAB

AN ASSESSMENT OF INSTRUMENTATION AND MONITORING NEEDS FOR SIGNIFICANT AIR POLLUTANTS EMITTED BY AIR FORCE OPERATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH ON ANALYSIS OF POLLUTANTS. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT. 1 DEC 72-31 JAN 74.
FEB 74 184P PARTS,LEO IPUSTINGER,JOHN V. IROSS,WILLIAM D. ISNYDER,ARTHUR D. IYU, HENRY H. S. I
CONTRACT: F33615-72-C-1309
PROJ: AF-7023
TASK: 702304
MONITOR: ARL TR-74-0015

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *MONITORING, *AIR FORCE OPERATIONS, ODORS, PARTICULATES, EXHAUST GASES, METALS, ROCKET EXHAUST, HERBICIDES, INCINERATORS, GAS ANALYSIS, ORGANIC COMPOUNDS, CHEMICAL ANALYSIS, MEASURING INSTRUMENTS (U)
IDENTIFIERS: AIRCRAFT EXHAUST, AIR POLLUTION DETECTION, AUTOMOBILE EXHAUST (U)

RELIABLE MONITORING TECHNOLOGY IS REQUIRED TO CONTROL NOXIOUS EFFLUENTS ARISING FROM AIR FORCE'S OPERATIONS. PRESENT AND PROJECTED MONITORING NEEDS HAVE BEEN ESTABLISHED. PRESENTLY USED MONITORING TECHNIQUES ARE DISCUSSED. RESEARCH AND DEVELOPMENT ACTIVITIES IN GOVERNMENTAL, INDUSTRIAL, AND EDUCATIONAL ORGANIZATIONS, RELEVANT TO AIR FORCE'S MONITORING NEEDS, HAVE BEEN IDENTIFIED. RECOMMENDATIONS REGARDING INSTRUMENT DEVELOPMENT, TO MEET THE EXISTING AND FORESEEABLE REQUIREMENTS, ARE PRESENTED IN THE FOLLOWING AREAS: VOLATILE AIRCRAFT EMISSIONS, PARTICULATE AIRCRAFT EMISSIONS, MISSILE-RELATED SUBSTANCES, METALLIC ELEMENT EMISSION SOURCES, HERBICIDE DISPOSAL OPERATIONS, AMBIENT AIR, AND SPECIAL MONITORING NEEDS. GENERAL RECOMMENDATIONS SPECIFY AREAS IN WHICH FUNDAMENTAL RESEARCH IS OF VITAL IMPORTANCE. (MODIFIED AUTHOR ABSTRACT) (U)

AD-870 890 19/1 7/4 15/7
FRANKFORD ARSENAL PHILADELPHIA PA

BARRIER/COUNTERBARRIER RESEARCH. MOLECULAR SENSING. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
MAR 70 26P LANNON,JOSEPH A. ISALANON, ROBERT I
REPT. NO. FA-M70-14-1
PROJ: DA-1-J-6627708-A-462

UNCLASSIFIED REPORT

DESCRIPTORS: (*MINE DETECTORS, GAS DETECTORS), (*GAS DETECTORS, SENSITIVITY), (*UNDERGROUND STRUCTURES, DETECTION), CONCENTRATION(CHEMISTRY), DETECTORS, DECOMPOSITION, GASES, GAS CHROMATOGRAPHY, GAS ANALYSIS, AIRBORNE, LAND MINES, UNDERGROUND, SAMPLING, SHELL, RESPONSE, EFFECTIVENESS, SELECTION, DETECTORS, ODORS, MASS SPECTROSCOPY, HUMANS, INFRARED SPECTROSCOPY, ULTRAVIOLET SPECTROSCOPY, STATE-OF-THE-ART REVIEWS, DIFFUSION (U)
IDENTIFIERS: MOLECULAR SENSING, PERSONNEL DETECTORS, TUNNEL DETECTORS, TUNNELSUNDERGROUND STRUCTURES) (U)

THE PURPOSE OF THIS STUDY WAS TO DRAW A COMPARISON BETWEEN THE SENSITIVITIES OF PRESENT DAY CHEMICAL DETECTORS AND SENSITIVITIES WHICH ARE NEEDED FOR THE DETECTION OF MINES AND TUNNELS. AN ATTEMPT TO DETERMINE THE LEVELS OF CONCENTRATION OF EFFLUENTS EMANATING FROM MINES AND TUNNELS IS PRESENTED. THE SENSITIVITIES OF DETECTORS USED WITH CHROMATOGRAPHS AND OF OTHER DIRECT DETECTORS ARE GIVEN. FROM THESE SENSITIVITIES IT APPEARS THAT PRESENT DAY CHEMICAL DETECTORS ARE NOT CAPABLE OF DETECTING MINES AND TUNNELS. RESEARCH AREAS ARE SUGGESTED (ESPECIALLY THE OLFACTORY MECHANISM) WHICH OFFER PROMISE FOR DETECTING TRACE AMOUNTS OF GAS WITH ORDERS OF MAGNITUDE OF MORE SENSITIVITY AND SELECTIVITY THAN PRESENT DAY DETECTORS. (AUTHOR) (U)

AD-A90 662L 21/9.1
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y

DEVELOPMENT AND EVALUATION OF MISSILE PROPELLANT VAPOR DETECTORS. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.
JAN 68 9P
RPT. NO. NASL-940-36-TM-6
PROJ: SF-013-09-02
TASK: 5025

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDER, NAVAL SHIP SYSTEMS COMMAND, SHIPS-03919, WASHINGTON, D. C. 20360.

DESCRIPTORS: (*LIQUID ROCKET PROPELLANTS, SHIPBOARD), (*LIQUID ROCKET OXIDIZERS, *TOXIC AGENT ALARMS), HAZARDS, LEAKAGE(FLUID), FLUORIDES, CHLORINE COMPOUNDS, COLORIMETRY, CONCENTRATION(CHEMISTRY), VAPORS, AIRCRAFT CARRIERS, FEASIBILITY STUDIES, IONIZATION CHAMBERS, DETECTORS, ELECTROCHEMISTRY, SIGNAL-TO-NOISE RATIO, INTERFERENCE, SENSITIVITY, AMMONIA, BIPHENYL, AMINES (U)
IDENTIFIERS: CHLORINE TRIFLUORIDE, CVA 62 VESSEL, DIANISIDINE, E-91 TOXIC AGENT ALARMS, MAGAZINES(ORDNANCE) (U)

THE NAVAL APPLIED SCIENCE LABORATORY IS CONDUCTING RESEARCH TO DEVELOP PORTABLE AND FIXED INSTALLATION AUTOMATIC ALARM SYSTEMS TO DETECT, MEASURE AND IDENTIFY HAZARDOUS CONCENTRATIONS OF TOXIC VAPORS OF MISSILE PROPELLANT FUELS AND OXIDIZERS. IN ADDITION SUITABLE COMMERCIAL INSTRUMENTS ARE BEING EVALUATED. SEVERAL CANDIDATE DETECTORS ARE BEING EVALUATED COMPARATIVELY TO SELECT OPTIMUM UNIT FOR ADVANCED DEVELOPMENT BASED ON ANTICIPATED COST AND SYSTEM PERFORMANCE EFFECTIVENESS. (U)

AD-920 881L 15/2 6/6 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

THE DETECTION AND DETERMINATION OF SOME TOXIC ENVIRONMENTAL POLLUTANTS. (U)

NOV 73 10P BARENDSZ,A. W. I
REPT. NO. FSTC-HT-23-0408-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF TNO NIEUWS (NETHERLANDS) V27 N6 300-309 1972.

DESCRIPTORS: (*AIR POLLUTION, DETECTION), (*CHEMICAL WARFARE AGENTS, DETECTION), (*DETECTORS, POLLUTANTS), NERVE AGENTS, GAS DETECTORS, SMELL, ODORS, CONCENTRATION(COMPOSITION), ACETYLCHOLINESTERASE, CHOLINESTERASE INHIBITORS, PAPER, COLORIMETRY, WARNING SYSTEMS, INSECTICIDES, ORGANIC PHOSPHORUS COMPOUNDS, AEROSOLS, FLUORIDES, NETHERLANDS, TRANSLATIONS (U)
IDENTIFIERS: WATER ANALYSIS, FLUORIDOMETERS (U)

IT HAS BEEN ONE OF THE AIMS OF THE CHEMICAL LABORATORY TNO TO DEVELOP EQUIPMENT FOR THE PROTECTION OF HUMAN BEINGS IN A TOXIC ENVIRONMENT. IN THIS ARTICLE SEVERAL DEVICES ARE DESCRIBED WHICH ALLOW THE DETECTION AND DETERMINATION OF CHEMICAL WARFARE AGENTS AND SOME NORMAL ENVIRONMENTAL POLLUTANTS. (AUTHOR) (U)

Assessment of Stand-off IR Sensor, The Franklin Institute Research Laboratories, Philadelphia, Pa., Final Report F-C3547-06, F-C3538-07, Prepared for U.S. Army Land Warfare Labs., Aberdeen Proving Ground, Md., Dec 1973

Remote Spectroscopic Analysis of ppm-level Air Pollutants by Raman Spectroscopy, Tomas Hirschfeld, E. R. Schildkraut, Block Engineering, Inc., Cambridge, Mass. and Harvey Tannenbaum, David Tanenbaum, Edgewood Arsenal, Maryland, Applied Physics Letter, Vol 22, No. 1, Jan 1973

Air Pollution Field Studies With A Raman Lidar, H. P. DeLong, Defense Systems Div., Directorate of Development and Engineering, Edgewood Arsenal, Aberdeen Proving Ground, Md., Edgewood Arsenal Clearance 73-4

Evaluation of Emission Control Strategies for Sulfur Dioxide and Particulates in the St. Louis Metropolitan Air Quality Control Region, Illinois Implementation Planning Program 5, J. E. Norco, J. Hoover, J. W. Gudenas, M. A. Snider, Center for Environmental Studies, Argonne National Lab. Argonne, Ill. Oct 1971

Evaluation of Emission-Control Strategies for Sulfur Dioxide and Particulates in the Peoria Metropolitan Area, Illinois Implementation Planning Program 6, J. E. Norco, J. W. Gudenas, J. Hoover, Center for Environmental Studies, Argonne National Lab., Argonne, Ill., Jan 1972

A Study to Demonstrate the Indirect Environment Impact of Deploying Transportation Systems and Wastewater Treatment Facilities (DRAFT PROPOSAL to Environmental Protection Agency) A. S. Cohen, J. W. Gudenas, J. Hoover, J. E. Norco, Center for Environmental Studies, Argonne National Lab., Argonne, Ill., Jan 1973

Field Tests of a Laser Raman Measurement System for Aircraft Engine Exhaust Emissions, Donald A. Leonard, AVCO Everett Research Laboratory, Inc., Everett, Mass., Prepared for AF Aero Propulsbn Lab., AFSC, Wright-Patterson AFB, Ohio, Report No. AFAPL-TR-74-100, Oct 1974

Measuring the Transmittance of Atmospheric Dust in KBr Pellets Using a CO_2 Laser, Kenneth O. White, James D. Lindberg, Atmospheric Sciences Lab., U. S. Army Elec. Command, White Sands Missile Range, N. M., Reprinted from Applied Optics, Vol. 12, p. 2544, Nov 1973

Balloonborne Aerosol Particle Concentration and Size Distribution Measurements, F. Dearborn, R. Fenn, AFCRL(OPA), and J. Dulchinos, H. Miranda, GCA Corporation, Bedford, Mass.

Mass Spectrometric Techniques and Their Application to Integrated Circuit Reliability Problems, Dr. Robert W. Thomas, Rome Air Development Center, Griffiss AFB, New York, Final Rpt 0174 6902, Apr 1971

Air Pollution Engineering Source Evaluation of Ammonia Oxidation Plant Number 10, Holston Army Ammunition Plant, Kingsport, Tennessee, Roy V. Carter, Kathy Conley, Construction Engineering Research Laboratory, Champaign, Illinois, CERL-TR-E-23, Jan 1974

Field Spectrometric Measurements of Radionuclide Concentrations and External Gamma Exposure Rates at the Nevada Test Site. A Demonstration Study, L. R. Anspaugh, P. L. Phelps, G. W. Huckabay, T. Todachine, Lawrence Livermore Laboratory, Univer. of Calif., Livermore, Calif., UCRL-51412, 5 Jul 1973

A Measurement of the Absorption Coefficient of Atmospheric Dust, James D. Lindberg, Larry S. Laude, Atmospheric Sciences Lab., U. S. Army Electronics Command, White Sands MissIle Range, N. M., Report No. ECOM-5525, Dec 1973

Estimates of the Extinction of Electromagnetic Energy in the 8 to 12μm Range by Natural Atmospheric Particulate Matter, W. J. Lentz, G. B. Hoidale, Atmospheric Sciences Laboratory, U. S. Army Electronics Command, White Sands Missile Range, N. M., Report No. ECOM-5528, Jan 1974

Laser Beam Behavior on a Long High Path, J. B. Mason, J. D. Lindberg, Atmospheric Sciences Laboratory, U. S. Army Electroncs Command, White Sands Missile Range, N. M., Report No. ECOM-5430, Apr 1972

Determination of the Optical Absorption Coefficient of Powdered Materials Whose Particle Size Distribution and Refractive Indices are Unknown, James D. Lindberg, David G. Snyder, Atmospheric Sciences Lab., U. S. Army Elec.Command, White Sands Missile Range, N. M., Reprinted from APPLIED OPTICS, Vol. 12, p. 573, Mar 1973

"Detection Techniques for Air Pollutants," Edgewood Arsenal, SMUEA-TD, March 1972.

"Effluent Plume Imagining," Westinghouse Electric Corporation, LWL-CR-02C72, March 1973.

"A Laser Atmospheric Pollution Study," Zeller, E. J., Kansas University, Lawrence, NGR-17-002-009, June 1972.

"Microstructures and Area Contamination Profiles of Aitken Type Condensation Nuclei Clouds from Small Sources," H. T. Reilly, Army Land Warfare Laboratory, Aberdeen Proving Ground, Maryland.

"Remote Spectroscopic Analysis of Ppm-level Air Pollutants by Raman Spectroscopy," H. and D. Tanenbaum, Edgewood Arsenal, in Applied Physics Letters, Vol. 22, No. 1, 1 January 1973.

"Assessment of Stand-off IR Sensor," Army Land Warfare Laboratory, Applied Chemistry Branch, Aberdeen Proving Ground, Maryland, Report F-C3547-06, F-C3538-07, December 1973.

"Composition and Concentration Measurements of Atmospheric Pollutants by Remote Probing" by Pekney, W. N., Deseret Test Center, Fort Douglas, Utah, Report No. DTC-TN-72-604, December 1971.

Synopsis: Remote sensing of aerosols using optical radar, mie scattering and Reimann spectroscopy.

"Air Borne Aerosol Measurements Associated with Clear Air Turbulence Progress Report," Rosen, J. M.; Wyoming University, Laramie; NGR-51-001-028, September 1972.

"Measurement of Atmospheric Particles and Laboratory Experiments on the Adsorption and Oxidation of Sulfur Dioxide on the Surface of Particles at Room Temperature," Okita, T.; Army Foreign Science and Technology Center, Charlottesville, Virginia, FSTC-HT-23-101-71, July 1971.

"Survey of Electrostatic Probe Theories, May 1970 - September 1970," Fedele, J., Aerospace Corporation, San Bernadino, California, AEROSPACE-TR-0059-S-6816-42-01, Contract No. F-04701-70-C-0059, November 1970.

"Unique Method for Monitoring Cabin Air Pollution from Engine Oil in the EB57D Aircraft, Final Report, September 1968 - July 1970," Crawford, William J., Wells, Henry A., Air Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio, AFML-IR-72-244, May 1973.

"Survey of Methods of Observation and Measurement of Atmospheric Pollution," D. Mason, ONR London Conference Report C-27-73, 31 December 1973.

"Laser Beam Behavior On a Long High Path," Mason, J. B. and Lindberg, J. D., R&D Technical Report ECOM-5430, April 1973.

"Second Joint Conference on Sensing of Environmental Pollutants," Instrument Society of America, Washington, D.C., 10-12 December 1973.

"Atmospheric Scattering in the Visible and Infrared," Curcio, J. A., Naval Research Laboratory, Washington, D.C., NRL-5567, January 1961.

"Analysis of the Feasibility of an Experiment to Measure Carbon Monoxide in the Atmosphere," Bortner, M. H., General Electric Company, Philadelphia, Pennsylvania, Contract NAS-1-10139, October 1973.

"Measurements of Turbulence-Transport Properties with a Laser Doppler Velocimeter," W. Yanta, published as AIAA paper No. 73-169 from the AIAA 11th Aerospace Sciences Meeting, Washington, D.C., January 1973.

"Turbulence Measurements with a Laser Doppler Velocimeter," W. Yanta, Naval Ordnance Laboratory, White Oak, Maryland, TR-73-94, 1 May 1973.

"Air Pollution Field Studies with a Raman Lidar," H. P. Delong, Defense Systems Division, Directorate of Development and Engineering, Edgewood Arsenal, Aberdeen Proving Ground, Maryland.

AIR POLLUTION
Quality Assurance and Monitoring

AD-733 505 13/2 16/5
ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER (AIR FORCE) WASHINGTON D C

DETERMINATION OF MAXIMUM EMISSION RATES TO MEET AIR QUALITY STANDARDS. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 71 22P GREENWAY,A. ROGER ELYDON, DAVID S. I
REPT. NO. USAFETAC-TN-71-9

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *MILITARY FACILITIES), (*ATMOSPHERIC MOTION, AIR POLLUTION), COMBUSTION PRODUCTS, DIFFUSION, AIR FORCE OPERATIONS, WIND, STANDARDS (U)
IDENTIFIERS: MILITARY AIR FACILITIES, AIR POLLUTION STANDARDS, ATMOSPHERIC DIFFUSION, *FLUE GASES, TINKER AIR FORCE BASE (U)

THE REPORT EXPLAINS BRIEFLY THE TECHNIQUE USED TO CALCULATE FOR CERTAIN AIR FORCE BASES ALLOWABLE STACK EMISSIONS WITHIN THE LIMITS OF THE ENVIRONMENTAL PROTECTION AGENCY'S AIR QUALITY STANDARDS. EXAMPLES OF SUCH CALCULATIONS FOR CAPE KENNEDY AFS, KELLY AFB, AND TINKER AFB ARE GIVEN. GRAPHS OF 'EMISSION RATE VS DOWNWIND DISTANCES' ARE FURNISHED WHICH ALLOW DOWNWIND GROUND-CONCENTRATIONS OF SPECIFIC POLLUTANTS TO BE READILY ESTIMATED FOR EFFECTIVE STACK HEIGHTS OF 30, 50, AND 70 FEET. (AUTHOR) (U)

AD-908 566L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS APPLICABLE TO ARMY AMMUNITION PLANTS. VOLUME I. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
JAN 73 228P NEAL,L. G. I
REPT. NO. TRW-96020.009-VOL-I
CONTRACT: DAAA21-72-C-0625

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 28 MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, PICATINNY ARSENAL, ATTN: SMUPA-TS-T-S, DOVER, N. J. 07801.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907 216L.

DESCRIPTORS: (*AIR POLLUTION, *MUNITIONS INDUSTRY), (*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL), STANDARDS, LAW, ARMY, UNITED STATES, MILITARY FACILITIES, WASTE GASES, EXHAUST GASES, GASES, PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS, NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY, REMOVAL, ANALYSIS (U)
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION, STANDARDS, STACK GASES (U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER POLLUTION STANDARDS AND REGULATIONS. THE REPORT PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE FURTHER DETAILS. (AUTHOR) (U)

AD-916 774L 13/2 19/1
PICATINNY ARSENAL DOVER N J

ANNOTATED BIBLIOGRAPHY DEVELOPMENT OF METHODS TO MINIMIZE ENVIRONMENTAL POLLUTION MM AND T PROJECT 594119. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.
JAN 74 30P
REPT. NO. PA-TM-2122

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; SEP 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: FACILITIES AND PROTECTIVE TECHNOLOGY DIV., MANUFACTURING TECHNOLOGY DIR., DOVER, N. J. 07801.

DESCRIPTORS: (*AIR POLLUTION, *BIBLIOGRAPHIES), (*WATER POLLUTION, BIBLIOGRAPHIES), (*POLLUTION, ABATEMENT), COUNTERMEASURES, INDUSTRIAL WASTES, ENVIRONMENT, CONTAMINATION, PROTECTION, MUNITIONS INDUSTRY, MANUFACTURING, LOADERS, PROTECTION, SOLID WASTES, STANDARDIZATION, PHOSPHATES, INSTRUMENTATION, COSTS, ASSEMBLING, PROCESSES, REDUCTION, EXPLOSIVE MATERIALS, PROPELLANTS, NITROCELLULOSE, SULFATES, NITRATES (U)
IDENTIFIERS: DESIGN, NITROBODIES (U)

AS PART OF THE MODERNIZATION OF MUNITIONS MANUFACTURING AND LOADING FACILITIES, PICATINNY ARSENAL HAS BEEN ASSIGNED A MULTI-TASK PROJECT TO ABATE POLLUTION STEMMING FROM VARIOUS PROCESSES WITH THE OBJECTIVE OF MEETING STANDARDS BEING ESTABLISHED BY REGULATORY AGENCIES. THIS PROJECT PROVIDES A PLANNED PROGRAM OF AIR, WATER AND SOLID WASTE MUNITION MANUFACTURING POLLUTION ABATEMENT WHICH WILL (1) SURVEY THE PROBLEM, (2) ESTABLISH ECONOMICAL AND DEFINITIVE TECHNIQUES TO MEET CURRENT AND PLANNED STANDARDS, (3) PROVIDE DESIGN DATA AND CRITERIA FOR FUTURE MCA PROGRAMS AND (4) PROVIDE A MEANS OF INTEGRATING POLLUTION ABATEMENT INTO ANY NEW MANUFACTURING, LOAD AND ASSEMBLY PROCESSES AND OPERATIONS. THE WORK PERFORMED UNDER THIS TASK SUPPORTS ABATEMENT AT ALL GOCO PLANTS.

AD-912 219L 13/2 19/2
PICATINNY ARSENAL DOVER N J

GUIDELINES FOR POLLUTION MONITORING NETWORKS AT ARMY AMMUNITION PLANTS. I. AIR POLLUTION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 73 59P ROTH,MILTON (ABBOTT,RICHARD N. I
REPT. NO. PA-TR-4530
PROJ: DA-594119

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 6 AUG 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, FACILITIES AND TECHNOLOGY DIV., MANUFACTURING TECHNOLOGY DIRECTORATE, ATTN: SARPA-MT-F, DOVER, N. J. 07801.

DESCRIPTORS: (*AIR POLLUTION, MONITORS), (*MUNITIONS INDUSTRY, AIR POLLUTION), NITROGEN OXIDES, DIOXIDES, SULFUR COMPOUNDS, PHOTOCHEMICAL REACTIONS, OXIDIZERS, HYDROCARBONS, CARBON MONOXIDE, NETWORKS, SPECIFICATIONS, COSTS, SAMPLERS, ELECTRONIC RECORDING SYSTEMS, CALIBRATION, PARTICLES, DATA PROCESSING (U)
IDENTIFIERS: AIR (U)

DESIGN CRITERIA ARE PROPOSED FOR THE AMBIENT AIR MONITORING NETWORKS TO BE INSTALLED AT THE ARMY AMMUNITION PLANTS. INSTRUMENTAL PROCEDURES ARE INCLUDED FOR MONITORING NITROGEN DIOXIDE, SULFUR DIOXIDE, PHOTOCHEMICAL OXIDANTS, TOTAL HYDROCARBONS, AND CARBON MONOXIDE. THE INSTRUMENTS SUGGESTED ARE CONSIDERED SATISFACTORY. HOWEVER, IF TIME PERMITS, MORE RELIABLE INSTRUMENTS MAY BE INDICATED ON THE BASIS OF STUDY BEING SPONSORED BY PICATINNY ARSENAL AT THE AEHA. NONINSTRUMENTAL PROCEDURES MUST BE USED TO MONITOR PARTICULATE MATTER AND ACID MIST. PLANTS AT WHICH EXPLOSIVES AND PROPELLANTS ARE MANUFACTURED REQUIRE MORE MONITORING IN BOTH NUMBER OF STATIONS AND PARAMETERS THAN THOSE PERFORMING METAL WORKING, LOADING, ASSEMBLING OR PACKING. CRITERIA ARE INCLUDED FOR A CENTRAL DATA ACQUISITION AND ALARM SYSTEM AND FOR HOUSING THE MONITORING STATIONS. (AUTHOR) (U)

AD-751 897 6/9
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

THE INDUSTRIAL HYGIENE SURVEY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 72 9IP BURNETT,RONALD D. ;
REPT. NO. EHL-M-72M-11
PROJ: EHL-OBC-209

UNCLASSIFIED REPORT

DESCRIPTORS: (*HYGIENE, SYMPOSIA); (*INDUSTRIAL MEDICINE, HYGIENE); SAFETY, PROTECTIVE CLOTHING, HAZARDS, RESPIRATION, VENTILATION, AIR POLLUTION, CHEMICAL CONTAMINATION, WATER POLLUTION, ENVIRONMENT, MILITARY REQUIREMENTS, MILITARY MEDICINE (U)
IDENTIFIERS: *INDUSTRIAL HYGIENE (U)

THE PAPER DESCRIBES THE COMPLEXITIES INVOLVES IN CONDUCTING A MEANINGFUL INDUSTRIAL HYGIENE SURVEY AND IS ILLUSTRATED WITH NUMEROUS PHOTOGRAPHS OF ENVIRONMENTAL EVALUATIONS BEING ACCOMPLISHED AT A VARIETY OF TYPICAL AIR FORCE INDUSTRIAL OPERATIONS. THE PAPER WAS PRESENTED AT THE USAF OCCUPATIONAL SAFETY AND HEALTH ACT CONFERENCE HELD AT THE AIR FORCE INSPECTION AND SAFETY CENTER, NORTON AFB, CALIFORNIA ON 18-20 APR 72 TO FAMILIARIZE SAFETY PERSONNEL WITH THE FIELD OF INDUSTRIAL HYGIENE. (AUTHOR) (U)

AD-910 118L 13/2
SCS ENGINEERS LONG BEACH CALIF

SOLID WASTE COMPOSITION AND EMISSION FACTORS FOR SELECTED NAVAL ACTIVITIES. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN-DEC 72.
DEC 72 324P
CONTRACT: N62399-72-C-0017
PROJ: YF38.599
TASK: YF38.599.001
MONITOR: NCEL CR-73.011

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; DEC 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL CIVIL ENGINEERING LAB., PORT HUENEME, CALIF. 93043.

DESCRIPTORS: (*NAVAL SHORE FACILITIES, SANITARY ENGINEERING), (*WASTES(SANITARY ENGINEERING), SOLIDS), STATISTICAL DATA, COLLECTING METHODS, PROCESSING, DISPOSAL, COSTS, SALVAGE, METALS, PAPER, EXPLOSIVES, PLASTICS, WOOD, NAVAL EQUIPMENT, REPORTS, MANAGEMENT ENGINEERING (U)
IDENTIFIERS: CLASSIFIED MATTER, SECURITY, *SOLID WASTE DISPOSAL (U)

THIS REPORT PRESENTS AN ANALYSIS OF THE CHARACTERISTICS AND QUANTITIES OF SOLID WASTE GENERATED BY NAVY SHORE INSTALLATIONS. THE RAW DATA WAS OBTAINED DURING A SURVEY OF FIVE NAVY INSTALLATIONS IN THE SUMMER OF 1972. (AUTHOR) (U)

AD-880 270L 13/2
NATIONAL SANITATION FOUNDATION ANN ARBOR MICH.

STANDARD FOR INDIVIDUAL AEROBIC WASTEWATER TREATMENT PLANTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JAN-NOV 70.
JAN 71 28P
CONTRACT: F29601-70-C-0036
MONITOR: AFWL TR-71-2

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO DIRECTOR, AIR FORCE WEAPONS LAB., ATTN: DEZ-E, KIRTLAND AFB, N. MEX. 87117.

DESCRIPTORS: (*SANITARY ENGINEERING, *SEWAGE), TEST METHODS, STANDARDS, CHEMICAL ANALYSIS, PERFORMANCE(ENGINEERING), SAFETY, DESIGN (U)
IDENTIFIERS: AEROBIC PROCESSES, *SEWAGE TREATMENT (U)

THE REPORT PROVIDES A MECHANISM BY WHICH THE PERFORMANCE CAPABILITY ACCORDING TO MANUFACTURER'S CLAIMS AND PRESCRIBED EFFLUENT QUALITY OF INDIVIDUAL AEROBIC WASTEWATER TREATMENT PLANTS CAN BE TESTED. ANALYTICAL PARAMETERS, MATERIALS, DESIGN AND CONSTRUCTION, PERFORMANCE EVALUATION, EFFLUENT REQUIREMENTS, AND SAFETY ARE DISCUSSED IN DETAIL. (AUTHOR) (U)

AD-893 489L 13/2
PICATINNY ARSENAL DOVER N J

SURVEY OF POLLUTION AND ABATEMENT PLANS, LOUISIANA ARMY AMMUNITION PLANT (LOAD, ASSEMBLE AND PACK OPERATIONS). (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 72 47P STEEN,PHILIP I
REPT. NO. PA-TR-4335
PROJ: DA-594119

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 APR 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, ARMY MUNITIONS COMMAND, ATTN: AMSMU-MT, DOVER, N. J. 07801.

DESCRIPTORS: (*MUNITIONS INDUSTRY, *WASTES(INDUSTRIAL)), SANITARY ENGINEERING, AIR POLLUTION, WATER POLLUTION, EXPLOSIVES, INCINERATORS, SOURCES, DISPOSAL, ORGANIC NITROGEN COMPOUNDS, TETRYL, TNT, RDX, LOUISIANA (U)
IDENTIFIERS: AIR POLLUTION CONTROL, INDUSTRIAL WASTE TREATMENT, *LOUISIANA ARMY AMMUNITION PLANT, NITRO COMPOUNDS, SOLID WASTE DISPOSAL, CONTROL, WATER POLLUTION, WEBSTER COUNTY(LOUISIANA, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

THE REPORT DISCUSSES THE ENVIRONMENTAL POLLUTION PROBLEMS AND ABATEMENT PLANS ASSOCIATED WITH LOADING AND PACKING OPERATIONS AT THE LOUISIANA ARMY AMMUNITION PLANT, WEBSTER COUNTY, LOUISIANA. (AUTHOR) (U)

AD-A90 239L 13/2 7/1
PICATINNY ARSENAL DOVER N J

HOLSTON ARMY AMMUNITION PLANT: POLLUTION ABATEMENT PLANS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 71 61P HEIDELBERGER,WILLIAM I
REPT. NO. PA-TR-4286
PRO.I DA-84119

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 6 JAN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, PICATINNY ARSENAL, ATTN: SMUPA-PT-S, DOVER, N. J. 07801.

DESCRIPTORS: (*AIR POLLUTION, MUNITIONS INDUSTRY), (*WATER POLLUTION, MUNITIONS INDUSTRY), (*MUNITIONS INDUSTRY, *WASTES(INDUSTRIAL)), MILITARY FACILITIES, CONTROL, CHEMICAL INDUSTRY, ACETIC ANHYDRIDE, NITRIC ACID, ACETIC ACID, INCINERATORS, EVAPORATION, PARTICLES, SULFUR COMPOUNDS, HYDROCARBONS, NITRATES, TENNESSEE (U)
IDENTIFIERS: ABATEMENT, AIR POLLUTION, CONTROL, HOLSTON RIVER, *HOLSTON ARMY AMMUNITION PLANT, INDUSTRIAL WASTE TREATMENT, KINGSPORT(TENNESSEE), CONTROL, WATER POLLUTIO, JOINT PANEL ANNUNITION DISPOSAL, JPAU(JOINT PANEL ANNUNITION DISPOSAL) (U)

THE REPORT DISCUSSES THE ENVIRONMENTAL POLLUTION PROBLEM AND ABATEMENT PLANS ASSOCIATED WITH THE MANUFACTURING OF MUNITIONS AT THE HOLSTON ARMY AMMUNITION PLANT, KINGSPORT, TENNESSEE. ALL OF THE INDUSTRIAL OPERATIONS AT HAAP CONTRIBUTE TO THE ENVIRONMENTAL POLLUTION AT THE PLANT. THE MAIN CONTRIBUTORS ARE THE ACETIC ANHYDRIDE MANUFACTURING FACILITY, THE NITRIC ACID PRODUCTION FACILITY, THE ACETIC ACID RECOVERY COMPLEX, AND THE EXPLOSIVE PRODUCTION LINES. THE STEAM HEATING PLANTS ARE SIGNIFICANT CONTRIBUTORS OF So(x) AND PARTICULATES. INDUSTRIAL WASTE WATER IS DISCHARGED UNTREATED TO THE HOLSTON RIVER, AND AIR CONTAMINANTS ARE DISCHARGED UNTREATED TO THE ATMOSPHERE. SPECIFIC CONCLUSIONS AND RECOMMENDATIONS PERTAINING TO THE POLLUTION AND ITS ABATEMENT ARE MADE. (AUTHOR) (U)

AD-777 484 13/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

ENGINEERING AND DEVELOPMENT PROGRAM PLAN - AIRCRAFT PROPULSION SYSTEMS AIR POLLUTION. (U)

FEB 74 36P
REPT. NO. FAA-ED-20-1

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT, *SCIENTIFIC RESEARCH, PLANNING, STANDARDS, CONTROL (U)
IDENTIFIERS: AIR POLLUTION ABATEMENT (U)

THE AIRCRAFT PROPULSION SYSTEMS AIR POLLUTION PROGRAM ENGINEERING AND DEVELOPMENT PLAN STATES THE OBJECTIVES, SCOPE OF WORK, TENTATIVE SCHEDULES NECESSARY TO MEET THE OBJECTIVES, AND RECOMMENDED FUNDING LEVELS TO ACCOMPLISH THE FEDERAL AVIATION ADMINISTRATION'S RESEARCH NEEDS IN THE CONTROL AND REDUCTION OF AIRCRAFT PROPULSION SYSTEMS AIR POLLUTION. THESE NEEDS ARE IN CONSONANCE WITH THE AUTHORITIES AND RESPONSIBILITIES PLACED ON THE FAA BY THE CLEAN AIR AMENDMENTS OF 1970 (PUBLIC LAW 91-604). THE PLANNED WORK COVERS THE TIME PERIOD THROUGH 1979. (AUTHOR) (U)

AD-772 920 13/2
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS

PROTECTION OF THE ENVIRONMENT DURING DEMOLITION ACTIVITIES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 60P SKINNER,FRANK W. ; JR.;
MILLER,LOUIS (HARVEY,W.)
REPT. NO. AEWES-MISC-PAPER-M-73-6
PROJ: DA-9-A-062103-A-891
TASK: 9-A-062103-A-89105

UNCLASSIFIED REPORT

DESCRIPTORS: *DEMOLITION, *ENVIRONMENTS, PLANNING, POLLUTION, MILITARY FACILITIES, BARRACKS, CIVIL ENGINEERING, DUST CONTROL, SMOKE, AIR POLLUTION, WATER POLLUTION, EXPLOSIVE MATERIALS (U)
IDENTIFIERS: ENVIRONMENTAL QUALITY (U)

THE OBJECTIVE OF THIS STUDY WAS TO REFINE AND/OR DEVELOP NEW DEMOLITION TECHNIQUES WHICH WOULD SERVE TO MINIMIZE HAZARDS TO THE ENVIRONMENT IN AREAS WHERE DEMOLITION ACTIVITIES ARE SCHEDULED OR ARE ON-GOING. THE OBJECTIVE OF THE FIRST YEAR'S EFFORT WAS TO SURVEY PRESENT DEMOLITION TECHNIQUES AND PROVIDE A VEHICLE FOR ASSURING THAT THE MOST MODERN DEMOLITION TECHNIQUES AND PROCEDURES ARE DESCRIBED SO THAT THE ARMY MIGHT MAKE USE OF THEM IN DEVELOPING DEMOLITION CONTRACTS. THE PHASE OF THE STUDY REPORTED HEREIN INVOLVED (1) DETERMINING THE GENERAL STATE-OF-THE-ART OF THE DEMOLITION INDUSTRY REGARDING TECHNIQUES AND CURRENT PRACTICES, (2) ASSESSING ARMY DEMOLITION PROBLEMS AS CHARACTERIZED BY TYPICAL PROJECTS, AND (3) EVOLVING BASIC GUIDELINES AND OPTIONAL PLANS OF ACTION TO BE CONSIDERED IN PLANNING DEMOLITION PROJECTS. IT IS CONCLUDED FROM THIS INVESTIGATION THAT CURRENT ARMY POLICIES CONCERNING PROTECTION OF THE ENVIRONMENT FROM DEMOLITION OPERATIONS ARE IN STEP WITH BROAD FEDERAL POLICIES AIMED AT IMPROVING THE NATIONAL LEVEL OF ENVIRONMENTAL QUALITY. (MODIFIED AUTHOR ABSTRACT) (U)

AD- 908 566L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS APPLICABLE TO ARMY AMMUNITION PLANTS. VOLUME I. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
JAN 73 228P NEAL,L. G. ;
REPT. NO. TRW-96020-009-VOL-I
CONTRACT: DAAA21-72-C-0625

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 28 MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, PICATINNY ARSENAL, ATTN: SMUPA-TS-T-S, DOVER, N. J. 07801.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907 216L.

DESCRIPTORS: (*AIR POLLUTION, *MUNITIONS INDUSTRY), (*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL), STANDARDS, LAW, ARMY, UNITED STATES, MILITARY FACILITIES, WASTE GASES, EXHAUST GASES, GASES, PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS, NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY, REMOVAL, ANALYSIS (U)
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION, STANDARDS, STACK GASES (U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER POLLUTION STANDARDS AND REGULATIONS. THE REPORT PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE FURTHER DETAILS. (AUTHOR) (U)

AD- 772 899 13/2 15/5
ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

TECHNICAL EVALUATION STUDY OF THE CONSOLIDATED FIELD MAINTENANCE FACILITY AT FORT BRAGG, N.C. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 36P ROSENFIELD,H. J. ;DAVIS,N. L. ;SCHAMER,P. ;ELBL,N. ;
REPT. NO. CERL-TR-E-15

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *WASTE MANAGEMENT, *WATER POLLUTION, *MILITARY FACILITIES, CONTROL, NOISE POLLUTION, SOLID WASTES, WASTES, COST ESTIMATES, OILS, GASOLINE, STORAGE TANKS, PAINTS, WASTE WATER, DUST CONTROL, NORTH CAROLINA (U)
IDENTIFIERS: FORT BRAGG (U)

THE STUDY IDENTIFIES POTENTIAL POLLUTION SOURCES AND CONTROL EQUIPMENT REQUIREMENTS FOR THE PROPOSED CONSOLIDATED FIELD MAINTENANCE FACILITY AT FORT BRAGG, N.C. AN INVENTORY DETERMINED PROCESSES AND OPERATIONS WHICH WERE TO BE INCORPORATED IN THE NEW FACILITY. AIR POLLUTION, WATER, NOISE, AND SOLID WASTES WHICH MIGHT EMANATE FROM THE FACILITY ARE IDENTIFIED. RECOMMENDATIONS ARE GIVEN TO PROVIDE POLLUTION CONTROL FOR THE FOLLOWING: GASOLINE STORAGE TANKS, PAINT SPRAY BOOTHS, WOODWORKING SHOPS, WASTE OILS AND LUBRICANTS, WASHRACK WASTE WATER, DYNAMOMETERS, AND BODY SHOP. (AUTHOR) (U)

AD- 783 529 13/2
NAVAL WEAPONS CENTER CHINA LAKE CALIF

SURVEY AND EVALUATION OF THE ENVIRONMENTAL IMPACT OF NAVAL WEAPONS CENTER ACTIVITIES. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUN 74 238P GUINETTE,JAMES R. ;
REPT. NO. NWC-TM-2426

UNCLASSIFIED REPORT

DESCRIPTORS: *NAVAL SHORE FACILITIES, *DESERTS, *POLLUTION, *CALIFORNIA, CLIMATE, ENVIRONMENTS, PLANTS(BOTANY), ECOLOGY, WILDLIFE, LAND AREAS, WILDERNESS, WASTE DISPOSAL, PYROTECHNICS, AIR POLLUTION, EXPLOSIVES, HYDROLOGY, PUBLIC HEALTH, NOISE POLLUTION, TRANSPORTATION, INVENTORY (U)
IDENTIFIERS: *ENVIRONMENTAL IMPACTS, *CHINA LAKE NAVAL WEAPONS CENTER, LAND USE, ECOSYSTEMS (U)

THE REPORT ATTEMPTS TO DETERMINE WHAT CUMULATIVE EFFECT A MAJOR NAVY BASE AND ITS ASSOCIATED COMMUNITY HAS HAD ON A LARGE LAND AREA IN THE FRAGILE DESERT BIOME. THE STUDY IS NOT AN ENVIRONMENTAL IMPACT STATEMENT; BUT ESTIMATES THE IMPACT OF ALL CURRENT DAY-TO-DAY ACTIVITIES AT THE NAVAL WEAPONS CENTER (NWC), CHINA LAKE, CALIFORNIA. THE REPORT'S THREE MAJOR SECTIONS GIVE: A DESCRIPTION OF THE ENVIRONMENTAL SETTING; AN INVENTORY OF RESIDUALS THAT AFFECT AIR, WATER, NOISE, ETC.; AND THE METHODOLOGY USED TO EVALUATE ENVIRONMENTAL IMPACT ON THE ECOSYSTEM RECEPTORS IN THE NWC VICINITY. (MODIFIED AUTHOR ABSTRACT) (U)

AD-908 644L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS APPLICABLE TO ARMY AMMUNITION PLANTS. VOLUME I. (U)

DESCRIPTIVE NOTE: SPECIAL REPT., JAN 73 238P NEAL,L. G. I
REPT. NO. TRW-96020.UD9-VOL-I
CONTRACT: DAAA21-72-C-0625

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 28 MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, PICATINNY ARSENAL, ATTN: SMUPA-TS-T-S, DOVER, N. J. 07801.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907 216L.

DESCRIPTORS: (*AIR POLLUTION, *MUNITIONS INDUSTRY), (*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL), STANDARDS, LAW, ARMY, UNITED STATES, MILITARY FACILITIES, WASTE GASES, EXHAUST GASES, GASES, PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS, NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY, REMOVAL, ANALYSIS (U)
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION, STANDARDS, STACK GASES (U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER POLLUTION STANDARDS AND REGULATIONS. THE REPORT PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE FURTHER DETAILS. (AUTHOR)

AD-908 617L 13/2 5/3
PICATINNY ARSENAL DOVER N J

JOLIET ARMY AMMUNITION PLANT POLLUTION DISCUSSION AND ABATEMENT PLANS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., JUN 72 107P GRIFFIN,DONALD F. I
REPT. NO. PA-TR-4268
PROJ: 8A-99119

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 30 JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, ARMY MUNITIONS COMMAND, ATTN: AMSMU-MT, DOVER, N. J. 07801.

DESCRIPTORS: (*AIR POLLUTION, MUNITIONS INDUSTRY), (*WATER POLLUTION, MUNITIONS INDUSTRY), REDUCTION, EXPLOSIVES, CONTROL SYSTEMS, TNT, TETRYL, PURIFICATION, WASTES(INDUSTRIAL), DRAINAGE, DISPOSAL, INCINERATORS, EXHAUST GASES, CALCIUM, SULFATES, ABSORPTION, EMISSIVITY, AMMONIA, COUNTERMEASURES, OXIDATION, NITRIC ACID, COAL, WASTE GASES, ATMOSPHERIC PRECIPITATION, CARBON, OXIDES (U)
IDENTIFIERS: EFFLUENTS, *JOLIET ARMY AMMUNITION PLANT, PICATINNY ARSENAL, *ABATEMENT, *POLLUTION, SELLITE, WASTE WATE, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

THROUGH THE DIRECTION OF THE US ARMY MUNITIONS COMMAND, PICATINNY ARSENAL WAS REQUESTED TO FURNISH A PROGRAM FOR THE ABATEMENT OF POLLUTION AT ARMY AMMUNITION PLANTS. THE FIRST STEP IN THE PROGRAM IS TO CONDUCT AN IN-DEPTH SURVEY OF THE PLANTS IN ORDER TO IDENTIFY THE POLLUTANTS GENERATED AND TO EVALUATE PLANNED ABATEMENT PROGRAMS TO ENSURE THAT TECHNOLOGY IS ADEQUATE TO COMPLY WITH APPLICABLE REGULATORY STANDARDS. THIS REPORT IS CONCERNED WITH THE POLLUTION PROBLEMS RESULTING FROM OPERATIONS CONDUCTED AT THE JOLIET ARMY AMMUNITION PLANT (JAAP). (AUTHOR) (U)

96 / 56

AIR POLLUTION

Meterology

AD-719 582 9/1 13/2
RAND CORP SANTA MONICA CALIF

USE OF SCATTERING TECHNIQUES IN CLOUD MICROPHYSICS RESEARCH I. THE AUREOLE METHOD. (U)

OCT 70 49P DEIRMENDJIAN,D. I
REPT. NO. R-590-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*SKY BRIGHTNESS, *AEROSOLS), (*AIR POLLUTION, SKY BRIGHTNESS), BRIGHTNESS, RAYLEIGH SCATTERING, PARTICLES, ABSORPTION, SUN, ALBEDO (U)
IDENTIFIERS: LIGHT SCATTERING, *AIR POLLUTION DETECTION, *ATMOSPHERIC SCATTERING, CONDENSATION NUCLEI (U)

A SIMPLE, PHYSICALLY CLEAR METHOD IS DISCUSSED FOR ASSESSING THE AMOUNT OF ATMOSPHERIC TURBIDITY ON A CLOUDLESS DAY BY OBSERVING THE CIRCUMSOLAR AUREOLE--THE RING OF BRIGHTNESS AROUND THE SUN--AND COMPARING ITS BRIGHTNESS WITH THAT OF THE EQUIVALENT RAYLEIGH SCATTERING (PARTICLE-FREE) ATMOSPHERE. THE AUREOLE IS KNOWN TO BE CAUSED BY AEROSOLS. THIS REPORT APPLIES EXACT MIE THEORY PHASE FUNCTIONS FOR IDEALIZED POLYDISPERSIONS OF SPHERICAL PARTICLES TO ACCOUNT FOR THE AUREOLE. IT SHOWS THAT THE BRIGHTNESS GRADIENT WITHIN A DISC OF 10-DEG RADIUS AROUND THE SUN INDICATES THE SIZE DISTRIBUTION OF THE AEROSOL PARTICLES, AND THE OVERALL EXTENT OF THE AUREOLE WITHIN 90 DEG AROUND THE SUN INDICATES THE DEGREE OF TURBIDITY. (AUTHOR) (U)

AD-890 694L 9/1
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION SILVER SPRING MD AIR RESOURCES LABS

LONG-RANGE TRANSPORT AND DIFFUSION EXPERIMENT. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. JUN-NOV 71.
JAN 72 96P FERBER,GILBERT J. (LIST. ROBERT J. MACHTA,LESTER (
CONTRACT: ARPA ORDER-1041
PROJ: ARPA-1F10

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 JAN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO DIRECTOR, ADVANCED RESEARCH PROJECTS AGENCY, ATTN: TIO, ARLINGTON, VA. 22209.

DESCRIPTORS: (*AIR POLLUTION, *TRACER STUDIES), (*ATMOSPHERIC MOTION, AIR POLLUTION), UNITED STATES, GAS CHROMATOGRAPHY, HALOGENATED HYDROCARBONS, TEST METHODS, SULFUR COMPOUNDS, FLUORIDES (U)
IDENTIFIERS: SULFUR HEXAFLUORIDE (U)

THE PURPOSE OF THE PROJECT WAS TO INVESTIGATE THE FEASIBILITY OF CONDUCTING LONG-RANGE ATMOSPHERIC TRACER EXPERIMENTS TO STUDY TRANSPORT AND DIFFUSION OF GASEOUS PLUMES OVER CONTINENTAL DISTANCES. THE GOAL IS TO IMPROVE THE UNDERSTANDING OF PLUME BEHAVIOR SO AS TO ENHANCE THE ABILITY TO ESTIMATE LOCATION AND STRENGTH OF A SOURCE FROM AIR SAMPLES OBTAINED AT GREAT DISTANCES. A SERIES OF EXPERIMENTS IS SUGGESTED IN WHICH A TRACER GAS IS RELEASED OVER A PERIOD OF 3 TO 12 HOURS AND EXTENSIVE AIR SAMPLING IS CARRIED OUT TO DETERMINE THE DISTRIBUTION OF THE TRACER AS A FUNCTION OF TIME AND DISTANCE FROM THE SOURCE, AT GROUND LEVEL AND ALOFT. COMPOUNDS BEING INVESTIGATED AS POTENTIAL TRACERS INCLUDE SULFUR HEXAFLUORIDE (SF_6) AND SEVERAL HALOCARBONS ($C_2F_4Br_2$, CF_2Br_2, AND CF_3Br). ALL ARE DETECTABLE BY ELECTRON-CAPTURE GAS CHROMATOGRAPHY AT EXTREMELY LOW CONCENTRATIONS. (AUTHOR) (U)

AD-729 109 13/2 9/2
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

ON THE THEORY OF ATMOSPHERIC DIFFUSION IN FOG CONDITIONS. (U)

MAR 71 21P BERLIAND,M. E. [ONIKUL,R. I. IRYABOVA,G. V.]
RLPT. NO. AFCRL-71-0248, AFCRL-TRANS-91

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GLAVNAYA GEOFIZICHESKAYA OBSERVATORIYA, LENINGRAD. TRUDY (USSR) N207 P3-13 1968.

DESCRIPTORS: (*AIR POLLUTION, FOG); (*FOG, *ATMOSPHERIC MOTION); DIFFUSION, GASES, SMOKE, VISIBILITY, RIVERS, CONDENSATION, MOISTURE, SOLUBILITY, DIFFERENTIAL EQUATIONS, USSR (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION, TRANSLATIONS (U)

STUDY OF CASES OF INTENSE AIR POLLUTION SHOWS THAT A PART OF THEM IS RELATED TO PERIODS OF EXTENDED FOGS. THE HARMFUL EFFECT OF SMOKE AND GASEOUS ADMIXTURES IS REVEALED MORE SHARPLY IN FOG THAN IN OTHER WEATHER CONDITIONS; AN UNPLEASANT FEELING FROM THEM IS INCREASED, THE PRESENCE OF ADMIXTURES IN FOGS FURTHERMORE DECREASES THE VISIBILITY, ETC. ONE NOTES A REVERSE EFFECT WHEN THE PRESENCE OF SMOKE CONTRIBUTES TO THE CONDENSATION OF THE ATMOSPHERIC MOISTURE. IN THIS MANNER, A MUTUALLY INCREASING EFFECT OF SMOKES AND FOGS OCCURS. THE REPORT PRESENTS THE ESTIMATES OF THE INFLUENCE OF RIVER FOGS (THE THEORY OF WHICH IS DEVELOPED BY BERLIAND AND ONIKUL, ON THE DISTRIBUTION OF GASEOUS ADMIXTURES. (AUTHOR) (U)

AD-718 613 13/2 11/6
ARMY NATICK LABS MASS EARTH SCIENCES LAB

BIBLIOGRAPHY ON ATMOSPHERIC (CYCLIC) SEA-SALTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 70 78P BRIERLY,WILLIAM B.]
REPT. NO. ES-67
PROJ: DA-1-T-061101-A-914
MONITOR: USA-NLABS TR-70-43-ES

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, SALTS); (*BIBLIOGRAPHIES, AIR POLLUTION); (*AEROSOLS, DISTRIBUTION); (*SALTS, CORROSION); (*ATMOSPHERES, SALTS); LAKES, OCEANS, RIVERS, CORROSION INHIBITION, INTERACTIONS, ATMOSPHERIC MOTION, UPPER ATMOSPHERE, CHEMICAL PROPERTIES, ATMOSPHERIC PRECIPITATION, INDEXES (U)
IDENTIFIERS: AIR WATER INTERACTIONS (U)

THE BIBLIOGRAPHY PROVIDES MORE THAN 600 REFERENCES COVERING ALL PHASES OF THE SEA-SALT CYCLE: THE ORIGIN OF THE PARTICLES IN SALT LAKES, PLAYAS, AND OCEANS, THE PROCESSES BY WHICH THE SALT PARTICLES ARE JETTED INTO THE AIR FROM SEA AND LAKE SURFACES BY BURSTING BUBBLES, THEIR TRANSPORT INLAND OVER THE CONTINENTAL LANDMASSES, THEIR IMPINGEMENT, INCRUSTMENT, AND FALLOUT EITHER AS DRY SALT PARTICLES OR IN VARIOUS FORMS OF PRECIPITATION, AND THEIR EVENTUAL RETURN IN RIVERS TO THE SEA. SELECTED REFERENCES ARE ALSO INCLUDED ON THE HISTORIC DEVELOPMENT OF THE SUBJECT, METHODS OF CHEMICAL ANALYSIS, AND TECHNIQUES OF INSTRUMENTATION AND EXPERIMENTAL RESEARCH LEADING TO THE FORMULATION OF CURRENT THEORIES AND POSTULATIONS. AN INDEX TO SUBJECTS IS INCLUDED SO THAT THE READER MAY QUICKLY LOCATE REFERENCES PERTAINING TO HIS IMMEDIATE INTEREST. MOST OF THE CURRENT METEOROLOGICAL AND GEOPHYSICAL JOURNALS AS WELL AS OBSCURE SOURCES OF WORLD-WIDE SCOPE HAVE BEEN USED IN THIS COMPILATION. (AUTHOR) (U)

AD-728 912 18/8 18/7 18/3
TELEDYNE ISOTOPES WESTWOOD N J

PROJECT STARDUST, VOLUME III, CHAPTERS 9 TO 13. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 71 218P FEELY,HERBERT W. |FRIEND, JAMES P. |SEITZ,HAROLD |MARTIN,JOHN D. | ERLEBACH,WOODLAND E. |
REPT. NO. IWL-0001-193-VOL-3
CONTRACT: DA-49-146-XZ-079, ARPA ORDER-0172
MONITOR: DASA 2144-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-728 911, AND VOLUME 1, AD-850 378L.

DESCRIPTORS: (*RADIOACTIVE FALLOUT, SAMPLING); (*FISSION PRODUCT ACTIVITY, INTENSITY); (*NUCLEAR EXPLOSIONS, RADIOACTIVE FALLOUT), AEROSOLS, STRATOSPHERE, UPPER ATMOSPHERE, AIR POLLUTION, RADIOACTIVE DECAY, RADIOACTIVE ISOTOPES, TRANSPORT PROPERTIES, MATHEMATICAL MODELS, PARTIAL DIFFERENTIAL EQUATIONS, NUMERICAL ANALYSIS, PLUTONIUM (U)
IDENTIFIERS: PLUTONIUM 238, SNAP, STAR DUST PROJECT (U)

ICONTENTS: THE STRATOSPHERIC TRANSPORT OF PLUTONIUM-238 FROM THE APRIL 1969 SNAI-9A BURNUP; STRATOSPHERIC DISTRIBUTION OF COSMIC RAY ACTIVITY; THE DISTRIBUTION OF LEAD-210 AND POLONIUM-210 IN THE STRATOSPHERE; STRATOSPHERIC METEOROLOGICAL PROCESSES, MODELS AND DATA FROM PROJECT STARDUST; THE STARDUST NUMERICAL MODEL OF TRANSFER AND RAINOUT OF STRATOSPHERIC RADIOACTIVE MATERIALS. (U)

AD-729 610 9/2 13/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

EVIDENCE FOR SULFATE AS A MAJOR CONDENSATION NUCLEUS CONSTITUENT IN NONURBAN FOG. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
MAR 71 33P RINEHART,GAYLE S. |
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-20
MONITOR: ECOM 5366

UNCLASSIFIED REPORT

DESCRIPTORS: (*FOG, SOURCES); (*AIR POLLUTION, NEW MEXICO); (*AEROSOLS, SULFATES), CONDENSATION, PARTICLES, CLOUD COVER, GUIDED MISSILE RANGES (U)
IDENTIFIERS: WHITE SANDS MISSILE RANGE, WEATHER MODIFICATION, CONDENSATION NUCLEI (U)

TO LEARN MORE ABOUT POTENTIAL FOG CONDENSATION NUCLEI CONTENT, 71 ANDERSON SAMPLER PARTICULATE SAMPLES FROM THE WHITE SANDS MISSILE RANGE, NEW MEXICO AREA WERE EXAMINED. DURING A PORTION OF THE SAMPLING PERIOD, FROM SEPTEMBER TO DECEMBER, 1969, THE ROYCO LIGHT SCATTERING COUNTER WAS EMPLOYED SIMULTANEOUSLY. SULFATES APPEARED TO ACCOUNT FOR MOST OF THE SOLUBLE AND THUS POTENTIAL CONDENSATION NUCLEI. MOISTURE WAS AN IMPORTANT POSITIVE INFLUENCE ON THE NUMBER OF THESE PARTICLES; WIND SPEED DECREASED THEIR NUMBER. IN GENERAL, THE NUMBER OF LARGE AND GIANT PARTICLES REMAINED CONSTANT THROUGHOUT THE DAY. DAYTIME FLUCTUATIONS WERE ATTRIBUTED TO INCURSIONS OF FOREIGN AIR MASSES OR TO RAIN WASHOUT. IT IS CONCLUDED THAT THE SULFATE ION IS SUFFICIENTLY ABUNDANT IN THIS AND OTHER NONURBAN AREAS TO BE A DOMINANT CONSTITUENT IN CLOUD AND FOG CONDENSATION NUCLEI. (AUTHOR) (U)

AD-793 309 9/2
AIR FORCE GLOBAL WEATHER CENTRAL OFFUTT AFB NEBR

AFGWC AIR STAGNATION MODEL. (U)

MAY 72 ISP DAVE,RICHARD L. I
REPT. NO. AFGWC-TN-72-6-I

UNCLASSIFIED REPORT

DESCRIPTORS: (*WEATHER FORECASTING, AIR FORCE), WIND, AIR POLLUTION, ATMOSPHERIC PRECIPITATION, TRANSPORT PROPERTIES (U)

THE AIR STAGNATION MODEL (ASM) DEVELOPED AT THE AIR FORCE GLOBAL WEATHER CENTRAL (AFGWC) IS DESIGNED TO PROVIDE AIR STAGNATION DATA TO AIR FORCE INSTALLATIONS LOCATED OVERSEAS WHERE MESOSCALE DATA ARE AVAILABLE. PARAMETERS ARE DERIVED FROM THE AFGWC BOUNDARY LAYER MODEL (BLM) DATA AND THE AFGWC MESO-SCALE PREDICTION MODEL DATA. PRECIPITATION FORECASTS FROM THE MACRO-SCALE CLOUD MODULE (MSC) ARE ALSO USED. SINCE THE BLM FORECASTS ARE ONLY AVAILABLE THROUGH 24 HOURS, THE 36-HOUR OUTLOOK USES DATA FROM THE AFGWC MACRO-SCALE BAROCLINIC PREDICTION MODEL, THE MSC AND THE 1000-MB PROGNOSTIC MODEL. THE TECHNIQUES USED IN THE ASM ARE SIMILAR TO THOSE USED BY THE NATIONAL WEATHER SERVICE (NWS). THE AIR STAGNATION DATA INCLUDE MIXING DEPTH, TRANSPORT WIND IN THE MIXING LAYER, VENTILATION VALUE IN THE MIXING LAYER, METEOROLOGICAL STAGNATION INDEX (MSI), TIMES OF MAXIMUM AND MINIMUM MSI AND THE MAXIMUM AND MINIMUM MSI. (AUTHOR) (U)

TOT

AD-919 999 13/2 9/3 7/4
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

DIFFUSION AND DEPOSITION OF 30 MICRON PARTICLES FROM A LOW LEVEL SOURCE. (U)

MAR 74 94P JOHNSON,D. (MCCALLUM,J. A. (LARSON,D. B. I
REPT. NO. DRES-TECHNICAL PAPER-367

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*PARTICLES, DISTRIBUTION), (*AEROSOLS, DIFFUSION), GLASS, BEADS, PARTICLE SIZE, EDDY CURRENT, CROSS FLOW, DENSITY, DEPOSITION, RANGE(DISTANCE), TURBULENCE, SAMPLING, MATHEMATICAL MODELS, MATHEMATICAL PREDICTION, DRIFT, TRACER STUDIES, FLUORESCENCE, AIR POLLUTION, SAMPLERS, COLLECTING METHODS, ULTRAVIOLET RADIATION, COUNTING METHODS, WIND, LOW ALTITUDE, DOSAGE, FIELD TESTS, MICROMETEOROLOGY, CANADA (U)
IDENTIFIERS: DISSEMINATION, BOTTOMED SAMPLERS, CONTINUOUS POINT SOURCE, POINT SOURCE DISSEMINATION (U)

THE RESULTS OF A SERIES OF FIELD TRIALS ON THE DIFFUSION AND GROUND DEPOSITION OF 30 MICRON GLASS MICROSPHERES FROM A CONTINUOUS POINT SOURCE AT A HEIGHT OF 2.76 METERS ARE DISCUSSED. THE OBSERVED CROSSWIND INTEGRATED DEPOSIT DENSITY AS A FUNCTION OF DISTANCE FROM THE SOURCE WAS USED TO TEST TWO PREDICTION MODELS. ONE OF THESE MODELS EMPLOYS APPROPRIATELY AVERAGED STANDARD DEVIATIONS OF VERTICAL TURBULENCE AS THE MAIN PARAMETER OF ATMOSPHERIC DIFFUSION. THE OTHER IS THE STEADY STATE K-THEORY DIFFUSION MODEL WITH A COEFFICIENT OF EDDY DIFFUSIVITY WHICH VARIES WITH HEIGHT. IN GENERAL, THERE WAS REASONABLY GOOD AGREEMENT BETWEEN THE OBSERVED AND PREDICTED CROSSWIND INTEGRATED DEPOSIT DENSITY AS A FUNCTION OF DISTANCE FOR BOTH MODELS. ALTHOUGH THE SLOPING PLUME MODEL TENDS TO PREDICT GREATER RATES OF DEPOSITION THAN OBSERVED, WHILE THE K-THEORY MODEL PREDICTS LOWER RATES OF DEPOSITION THAN OBSERVED. THE STANDARD DEVIATION OF THE CROSSWIND DISTRIBUTION OF THE DEPOSIT DENSITY WAS COMPARED WITH THE STANDARD DEVIATION FROM APPROPRIATELY SAMPLED AND AVERAGED CROSSWIND TURBULENCE DATA.

AD-631 181 13/2 14/1 9/2
PACIFIC MISSILE RANGE POINT MUGU CALIF

THREE-DIMENSIONAL, ANALYTIC SOLUTIONS TO THE PROBLEMS OF DIFFUSION OF WIND-DRIVEN CONTAMINATION. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
APR 66 26P LUDLOFF,H. F. I
REPT. NO. PMR-TM-66-9.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON STUDY OF DIFFUSION OF CONTAMINATION FROM A SOURCE OF FINITE EXTENT, CONT. OF PMR-TM-65-9.

DESCRIPTORS: (*AIR POLLUTION, DIFFUSION), (*WIND, AIR), (*GUIDED MISSILE RANGES, AIR POLLUTION), DUST, AEROSOLS, WASTE GASES, EQUATIONS, CONTAMINATION, GUIDED MISSILE SAFETY, SOURCES, STATISTICAL (U)

ESTIMATES OF CRITICAL DISTANCES, UP TO WHICH DUST, AEROSOLS, AND (TOXIC) FUMES MAY BE DRIVEN, UNDER THE INFLUENCE OF VARIOUS WIND AND DIFFUSIVITY CONDITIONS, REQUIRE THAT THREE-DIMENSIONAL SOLUTIONS TO THE PROBLEM OF WIND-DRIVEN CONTAMINATION BE DERIVED, FOR APPLICATION TO RANGE SAFETY PROBLEMS. THE FOLLOWING WORK WAS DIRECTED TO THIS END: (1) ANALYTIC SOLUTIONS FOR CONSTANT WIND AND CONSTANT DIFFUSIVITY WERE DERIVED; (2) THREE - DIMENSIONAL ANALYTIC SOLUTIONS WERE DERIVED, UNDER THE ASSUMPTION THAT WIND SPEED AND EDDY DIFFUSIVITY VARY, EITHER IN ACCORDANCE WITH THE CONJUGATE POWER LAWS, OR IN A MORE GENERAL FASHION; (3) A NEW METHOD OF SOLUTION IS SUGGESTED WHICH MAY BE USED FOR SOLVING DIFFUSION PROBLEMS OF A MORE GENERAL NATURE; (4) FIVE PARTICULAR, THREE-DIMENSIONAL PARABOLIC SOURCE SOLUTIONS WERE DERIVED. (U)

AD-783 510 9/2 13/2
RAND CORP SANTA MONICA CALIF

A NUMERICAL EXPERIMENT ON THE EFFECTS OF REGIONAL ATMOSPHERIC POLLUTION ON GLOBAL CLIMATE. (U)

JUN 74 92P KOENIG,L. RANDALL I
REPT. NO. R-1929-ARPA
CONTRACT: DAHC15-73-C-0181, ARPA ORDER-189-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *CLIMATE, *AIR POLLUTION, *AEROSOLS, *ATMOSPHERE MODELS, CIRCULATION, GLOBAL, MATHEMATICAL MODELS, ATMOSPHERIC TEMPERATURE, WIND, SOLAR RADIATION, CONDENSATION NUCLEI, RAINFALL, CLOUD COVER, CONVERGENCE, CORRELATION TECHNIQUES, NORTH AMERICA, SOUTH AMERICA (U)
IDENTIFIERS: GREENHOUSE EFFECT (U)

THE REPORT DESCRIBES THE USE OF A GLOBAL ATMOSPHERIC GENERAL CIRCULATION MODEL TO INVESTIGATE THE CHANGE IN CLIMATE CAUSED BY THE INTRODUCTION OF HIGH CONCENTRATIONS OF HYGROSCOPIC AEROSOLS INTO A LIMITED REGION--ROUGHLY, NORTH AMERICA. IT WAS POSTULATED THAT THE AEROSOLS WOULD SERVE AS CONDENSATION NUCLEI AT LOWER RELATIVE HUMIDITY THAN NATURAL AEROSOLS. THE EXPERIMENT WAS RUN SIMULATING 60 DAYS. VALUES OF METEOROLOGICAL PROPERTIES DURING THIS PERIOD WERE COMPARED WITH THOSE OBTAINED BY A CONTROL SIMULATION IN WHICH THE POLLUTED REGION WAS ABSENT. (U)

AD-884 687L 13/2 1/5
GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y

DISPERSION MODELING OF AIRPORT
POLLUTION. (U)

DEC 70 24P
MONITOR: GIDEP 347.00.00.00-K9-113

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 17 JUN 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL FLEET MISSILE SYSTEMS ANALYSIS AND EVALUATION GROUP (CODE 262), ATTN: GIDEP OFFICE, CORONA, CALIF. 91720.

DESCRIPTORS: (*AIR POLLUTION, *AIRPORTS), (*ATMOSPHERIC MOTION, AIR POLLUTION), EXHAUST GASES, MATHEMATICAL MODELS, CARBON MONOXIDE, JET ENGINES, SPARK IGNITION ENGINES, DIFFUSION (U)
IDENTIFIERS: *JET ENGINE EXHAUST (U)

THE PAPER DESCRIBES THE PROCEDURES FOLLOWED IN DEVELOPING AND VALIDATING COMPUTER MODELS OF AIR POLLUTION CAUSED BY AIRPORTS. SUCH DISPERSION MODELS ARE USED TO CALCULATE HOW THE POLLUTION EMITTED FROM THE MANY CONTRIBUTING SOURCES SPREADS TO AFFECT SURROUNDING AREAS. THIS SIMULATION PERMITS A REALISTIC EVALUATION OF POSSIBLE ALTERNATIVE STRATEGIES FOR AIR POLLUTION ABATEMENT. THE BASIC ELEMENTS OF A MODELING PROBLEM ARE SEEN TO BE THE EMISSION SOURCES, THE METEOROLOGY, AND THE DISPERSION PARAMETERS; CURRENT METHODS FOR HANDLING EACH OF THESE ARE EXPLAINED. THE TREATMENT OF A SAMPLE AIRPORT IS DESCRIBED AND TYPICAL RESULTS ARE PRESENTED. FINALLY, THE PAPER INDICATES SOME OF THE AREAS IN WHICH LIMITED KNOWLEDGE AFFECTS THE IMPLEMENTATION OR ACCURACY OF AIRPORT DISPERSION MODELING. (AUTHOR) (U)

AD-874 859 13/2 9/2
GRUMMAN AEROSPACE CORP BETHPAGE N Y RESEARCH DEPT

COMPARISON OF AIR POLLUTION MODELS WITH AEROMETRIC DATA FOR THE AIR QUALITY REGION CENTERED ON NEW YORK CITY. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
OCT 70 56P MILFORD,S. H. (MCCOYD,G. C. (ARONOWITZ,L. (SCANLON,J. H.)
REPT. NO. RE-392J
MONITOR: GIDEP 347.60.00.00-K9-04

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, MATHEMATICAL MODELS), ATMOSPHERE MODELS, NEW YORK, URBAN AREAS, STABILITY, DISTRIBUTION, QUALITY CONTROL, PREDICTIONS, OPTIMIZATION, RANGE(DISTANCE), DENSITY, WIND, METEOROLOGICAL PHENOMENA, NEW JERSEY, CONNECTICUT, COMPUTER PROGRAMS, URBAN PLANNING (U)
IDENTIFIERS: CLEAN AIR, NEW YORK CITY, TRADEOFFS (U)

TO ACHIEVE THE NATIONAL GOAL OF CLEAN AIR, ANALYTICAL TOOLS ARE NEEDED WITH WHICH TO DETERMINE THE MOST EFFICIENT STRATEGIES FOR CONTROLLING POLLUTION FROM EXISTING INSTALLATIONS, AND FOR PLANNING NEW CONSTRUCTION AND NEW CITIES. A COMPUTER MODEL THAT SIMULATES THE DISTRIBUTION OF AIR POLLUTION IN AN URBAN AREA IS BEING DEVELOPED BY THE GRUMMAN RESEARCH DEPARTMENT. THIS MODEL SHOWS SIGNIFICANT PROMISE AS A PRACTICAL TOOL FOR ABATEMENT PURPOSES, SINCE IT WOULD PROVIDE THE TYPE OF INFORMATION URBAN EXPERTS NEED TO INCLUDE AIR POLLUTION CONSIDERATIONS IN THEIR URBAN PLANNING. THIS REPORT CONTINUES THE COMPARISON BETWEEN THE PREDICTIONS OF THE MODEL AND THE POLLUTION MEASUREMENTS AT 10 STATIONS OF THE NEW YORK CITY AEROMETRIC NETWORK. THE GENERAL OBJECTIVE IS TO DETERMINE HOW MUCH DETAIL MUST BE INTRODUCED IN THE MODEL TO PROVIDE REASONABLY ACCURATE RESULTS. IT HAS BEEN FOUND NECESSARY TO CONSIDER SEPARATELY THE SIX CATEGORIES OF METEOROLOGICAL CONDITIONS REPRESENTED BY THE COMBINATION OF THREE WIND SPEED RANGES (LOW, MEDIUM, HIGH) WITH TWO MIXING HEIGHTS (TYPICAL OF DAYTIME AND NIGHTTIME) IN ORDER TO IMPROVE THE AGREEMENT WITH MEASURED DATA.

AD-722 638 4/1 20/6
MAINZ UNIV (WEST GERMANY) METEOROLOGISCH-GEOPHYSIKALISCHES INSTITUT

RESEARCH ON ATMOSPHERIC OPTICAL RADIATION TRANSMISSION. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 1, 1 JAN 69-31 DEC 70.
JAN 71 91P EIDEN,REINER ESCHELBACH, GUENTER HAENEL,GOTTFRIED BULLRICH,KURT
CONTRACT: F61052-69-C-0016
PROJ: AF-7621
TASK: 762103
MONITOR: AFCRL 71-0189

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERES, *LIGHT TRANSMISSION), TURBULENCE, HUMIDITY, ABSORPTION, SCATTERING, REFLECTION, THERMAL RADIATION, AEROSOLS, AIR POLLUTION, POLARIZATION, REFRACTIVE INDEX, VISIBILITY, WEST GERMANY (U)
IDENTIFIERS: ATMOSPHERES, ATTENUATION, ATMOSPHERIC RADIATION (U)

THE REPORT DISCUSSES THE FOLLOWING ITEMS: A DIRECT METHOD FOR THE INTEGRATION OF THE EQUATION OF RADIATIVE TRANSFER IN A TURBID ATMOSPHERE; DETERMINATION OF THE COMPLEX INDEX OF REFRACTION OF SPHERICAL AEROSOL PARTICLES OPTIMAL INFORMATION IS OBTAINED OF THE LIGHT SCATTERED BY ANALYSING THE DEGREE OF POLARIZATION. THE ELLIPTICITY AND THE ANGLE OF ORIENTATION OF THE ELLIPSE OF THE FIELD VECTOR; NEW RESULTS ON VISUAL RANGE AS FUNCTION OF RELATIVE HUMIDITY HAVE INDICATED THAT THERE EXISTS A SIMPLE RELATION BETWEEN THE CHANGE IN VISUAL RANGE AND CHANGE OF PARTICLE RADIUS; AND, CALCULATIONS OF THE SPECTRAL EXTINCTION COEFFICIENT OF ATMOSPHERIC AEROSOL PARTICLES WITH DIFFERENT COMPLEX REFRACTIVE INDICES. (AUTHOR) (U)

AD-747 077 4/1 4/2
SYSTEMS CONTROL INC PALO ALTO CALIF

ATMOSPHERIC MODEL SURVEY. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-31 AUG 73,
AUG 73 221P SCHAIN,EA,R. B. IWIRSCHING, J. E. ILAU,R. W. IPATMORE,J. W. IBRENNAN, R. P. I
REPT. NO. SCI-5101-1
CONTRACT: N00019-73-C-0409
PROJ: NR-041-214, RR023-02
TASK: RR023-02-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERE MODELS, *STRATOSPHERE), (*JET TRANSPORT PLANES, *CLIMATE), AIR POLLUTION, PHOTOCHEMICAL REACTIONS, ATMOSPHERIC MOTION, WAKE, AEROSOLS, WATER VAPOR, TRANSPORT PROPERTIES, ANALYSIS OF VARIANCE, MATHEMATICAL MODELS, STATISTICAL DISTRIBUTIONS, REGRESSION ANALYSIS, TIME SERIES ANALYSIS, MONTE CARLO METHOD, SOLAR RADIATION, OZONE (U)
IDENTIFIERS: ATMOSPHERIC CIRCULATION, ATMOSPHERES, COMPOSITION(PROPERTY), CLIMATIC CHANGES, SUPERSONIC TRANSPORTS, ENVIRONMENTS, SURVEYS (U)

THE REPORT TREATS THE SUBJECT OF ERROR VARIANCE ANALYSIS AS AN ADJUNCT TO THE SCIENTIFIC CONTENT OF THE FINAL REPORTS AND MONOGRAPHS OF THE CLIMATIC IMPACT ASSESSMENT PROGRAM (CIAP). A SURVEY OF CIAP MODELLING EFFORTS IS PRESENTED AND ASSEMBLED IN ARRAY FORMAT TO ILLUSTRATE THE COMPOSITE LINKAGE OF ATMOSPERIC MECHANISMS. (AUTHOR) (U)

AD-699 379 9/1 13/2
COLORADO STATE UNIV FORT COLLINS FLUID DYNAMICS AND DIFFUSION LAB

TURBULENT DIFFUSION IN A STABLY STRATIFIED SHEAR LAYER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 69 209P CHAUDHRY,FAZAL H. INERONEY, ROBERT N. I
REPT. NO. CER69-70FH[illegible]HH13
CONTRACT: DAAB07-6[illegible]-0923
MONITOR: ECOM C-0923-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERIC MOTION, DIFFUSION), (*AIR POLLUTION, *DIFFUSION), TURBULENCE, ATMOSPHERES, TRANSPORT PROPERTIES, EQUATIONS OF MOTION, BOUNDARY LAYER (U)
IDENTIFIERS: NIGHT, POINT SOURCE DISSEMINATION, SHEAR FLOW (U)

THE REPORT IS CONCERNED WITH THE DIFFUSION OR TRANSPORT OF A PASSIVE SUBSTANCE BY RANDOM MOTIONS OF A TURBULENT FLUID FLOW. THE PROBLEM OF AIR POLLUTION IS THE MOST IMPORTANT SINGLE FACTOR RESPONSIBLE FOR EXTENSIVE STUDY OF THE PHENOMENON OF DIFFUSION. THE ATMOSPHERE IS ABSORBING WASTE NEARLY AROUND THE CLOCK, ALTHOUGH ITS CAPACITY TO DILUTE AND DISPERSE THE POLLUTANTS IS AT ITS LOWEST EBB DURING THE NIGHT. IT IS THIS ASPECT OF DIFFUSION WITH WHICH THE REPORT DEALS PARTICULARLY.
(AUTHOR) (U)

AD-609 343
CALIFORNIA UNIV LOS ANGELES DEPT OF METEOROLOGY

SURFACE WIND PATTERNS IN THE LOS ANGELES BASIN DURING 'SANTA ANA' CONDITIONS. (U)

DESCRIPTIVE NOTE: PART I OF FINAL REPT. ON U.S. FOREST SERVICE RESEARCH PROJ. 2606.
SEP 69 84P EDINGER,JAMES G. INELVEY, ROGER A. IBAUMHEFNER,DAVID)
CONTRACT: OCD-OS-62-193, OCD-PS-69-29

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION, FOREST SERVICE, BERKELEY, CALIF.

DESCRIPTORS: (*FIRES, CALIFORNIA), (*WIND, FLAME PROPAGATION), METEOROLOGICAL PHENOMENA, WEATHER FORECASTING, ATMOSPHERIC MOTION, HUMIDITY, GUSTS, AIR POLLUTION, DUST, SAND, SMOKE, FIRE SAFETY, TERRAIN, DIURNAL VARIATIONS, MAPS (U)

THE RESULTS OF AN ANALYSIS OF SEVEN YEARS OF 'SANTA ANA' WIND SITUATIONS IS PRESENTED. THE SURFACE WIND FIELD OVER THE GREATER LOS ANGELES AREA IS PRESENTED FIRST IN STATISTICAL TERMS, PERCENTAGE FREQUENCY OF WIND DIRECTIONS AND MEAN WIND SPEEDS, AND THEN AS STREAMLINE ANALYSES OF INDIVIDUAL SITUATIONS. AREAS OF STRONG FLOW AND WEAK FLOW ARE DELINEATED AS WELL AS THE DIURNAL FLUCTUATIONS OF THE MAJOR FEATURES IN THE SURFACE FLOW PATTERN.
(AUTHOR) (U)

AD-729 859 9/1
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS

NUMERIC CALCULATION OF TURBULENT DIFFUSION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 70 9P THOMPSON,R. I
REPT. NO. WHOI-REF-71-32, WHOI-CONTRIB-2560
CONTRACT: N00019-68-C-0291
PROJ: NR-083-009

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN QUARTERLY JNL. OF THE ROYAL METEOROLOGICAL SOCIETY, V97 N411 P93-98 JAN 71.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH OREGON STATE UNIV., CORVALLIS. REVISION OF REPORT DATED 27 MAY 70.

DESCRIPTORS: (*ATMOSPHERIC MOTION, NUMERICAL ANALYSIS), TURBULENCE, DIFFUSION, SIMULATION, MATHEMATICAL MODELS, STATISTICAL PROCESSES, PARTICLES, SMOKE, EQUATIONS OF MOTION, PROBABILITY, AIR POLLUTION (U)

A SIMPLE, FLEXIBLE METHOD INVOLVING A RANDOM NUMBER GENERATOR IS GIVEN FOR SIMULATING TIME DEPENDENT DISPERSION. THE DIFFUSION IS SIMULATED BY LETTING A SERIES OF PARTICLES MOVE WITH THE LOCAL MEAN WIND PLUS RANDOM FLUCTUATIONS OF THIS WIND. THIS SIMULATION METHOD IS NOT GREATLY COMPLICATED BY INTRODUCTION OF HORIZONTAL AND VERTICAL SHEAR, BUOYANCY, OR ANISTROPIC TURBULENCE, AND GENERALLY REQUIRES LESS COMPUTER TIME AND STORAGE THAN NEEDED FOR FINITE DIFFERENCE COMPUTATIONS OF COMPARABLE ACCURACY OVER A NETWORK OF FIXED GRID POINTS. SOLUTIONS OF PARTICULAR CASES COMPARE WELL WITH KNOWN SOLUTIONS. (AUTHOR) (U)

106

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM AERIAL LINE SOURCES. (U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FRESE,JAMES E. I
REPT. NO. DPG-DR-AS02-8
PROJ: RDT/E-1-8-025001-A-128, USATFCOM-8-8-9955-22

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDP-TT-JP-I(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DISTRIBUTION), (*BACTERIAL AEROSOLS), (*AEROSOL GENERATORS), AIRBORNE, DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE, TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING, UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE, AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION, ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS (U)
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT PIGMENT PARTICLES, FLUORESCENT PARTICLES, FPIFLUORESCENT PIGMENT), FP DISSEMINATORS MODEL B, GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE FILTERS, ROTOROD SAMPLERS, SKIL BLOWERS; U/A REPORTS, U-6 AIRCRAFT, U-9D AIRCRAFT, U-6A AIRCRAFT, U-8 AIRCRAFT, VERTICAL GRIDS, WINDSOR SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND SPECIFIED RELEASE HEIGHTS (ASD). PHASE A). THE SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS AND RELEASE HEIGHTS (ASD). PHASE B). UPON COMPLETION OF FOURTEEN TRIALS UNDER PHASE B, THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL DESTRUCTION OF NONREPLACEABLE TEST APPARATUS PREMATURELY TERMINATED TESTING. THE SUCCESSFUL TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE RELEASES OF FLUORESCENT PIGMENT (FP) PARTICLES. SAMPLING WAS PERFORMED AT GROUND LEVEL TO A DISTANCE OF 29.1 KM DOWNWIND FROM THE RELEASE LINES. IN ADDITION, VERTICAL SAMPLING (TO A HEIGHT OF 240 METERS) WAS PERFORMED AT VARIOUS DOWNWIND (U)

Interhemispheric Comparison of Changes in the Composition of Atmospheric Precipitation During the Late Cenozoic Era, J. H. Cragin, M. M. Herron, C. C. Langway, Jr., and G. Klouda, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Presented at SCOR/SCAR Polar Oceans Conference, 6-11 May 1974

Arctic Fog Droplet Size Distribution and its Effect on Light Attenuation, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Published in Journal of Atmospheric Sciences, Vol.30, No. 4, May 1973

A Study of Ice-Fog Crystal Nuclei and Ice-Fog Formation, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Sixth International Congress for Electron Microscopy, Kyoto, Japan, 1966

Electron Microscopic Study of Ice-Fog and Ice-Crystal Nuclei in Alaska, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Journal of Meteorological Society of Japan, Series II, Vol 44, No. 3, Jun 1966

Snow Crystals and the Identification of the Nuclei in the Northern United States of America, Motoi Kumai, The University of Chicago and Hokkaido University, Journal of Meteorology, Vol. 18, No. 2, pp. 139-150, Apr 1961

Sandia Laboratories Low-Speed Wind Tunnel for Research in Atmospheric Flows and Incompressible Fluid Mechanics, C. W. Peterson, R. H. Croll, R. E. Luna, A. J. Russo, Sandia Laboratories, Albuquerque, New Mexico, SAND75-0124, Apr 1975

Stratospheric Aerosol: The Contribution From the Troposphere, A. C. Delany, J. P. Shedlovsky, and W. H. Pollock, National Center for Atmospheric Research, Boulder, Colorado, Journal of Geophysical Research, Vol. 79, No. 36, 29 Dec 1974

Ice Fog Modification By Use of Helicopters, James R. Hicks, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, SR 162, Sep 1971

A Study of Hexogonal and Cubic Ice at Low Temperatures, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, RR 231, Jul 1967

Recent Studies of the Suspension of Desert Dust and Resuspension of Toxic Aerosol Due to Wind, William M. Porch, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., UCRL-75194, Dec 1973

Resuspension of Plutonium: A Progress Report, L. R. Anspaugh, P. L. Phelps, N. C. Kennedy, H. G. Booth, R. W. Goluba, J. R. Reichman, and J. S. Koval, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., UCRL-75484, 19 Feb 1974

Rainout Studies at Lawrence Livermore Laboratory, Joseph B. Knox, Allen L. Williams, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., UCRL-51530, 11 Feb 1974

Atmospheric Release Advisory Capability: Research and Progress, Joseph B. Knox, Todd V. Crawford, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., UCRL-75644(Rev. II) 8 May 1974

Wind-Driven Redistribution of Surface-Deposited Radioactivity, L. R. Anspaugh, P. L. Phelps, N. C. Kennedy, H. G.Booth, Lawrence Livermore Lab., Univ. of Calif., Livermore, Calif., UCRL-74392, 11 May 1973

The Fluorescent Particle Atmospheric Tracer, Philip A. Leighton, Wm. A. Perkins, Stuart W. Grinnell, Francis X. Webster, Metronics Associates, Inc., Palo Alto, Calif., Journal of Applied Meteorology, Vol. 4, pp. 334-348, Jun 1965

"DNA 1973 Atmospheric Effects Symposium, Proceedings, Vol. 02," Defense Nuclear Agency, Washington, D.C., DNA-3131-P-2, June 1973.

"Air Pollution Engineering Source and Ambient Sampling Survey" by Clearwater, R. M., et al, Army Environmental Hygiene Agency, Edgewood Arsenal, Maryland, Report USA EHA-21-032-71/72, September 1972.

Synopsis: Wind effects on sulphur oxides, particles and lead.

"Studies of Atmospheric Processes," Fisher, E. R., Air Force Cambridge Research Laboratory, Report No. 730287, December 1972.

"Analytical Model of Multiple Cloud Phenomenology, Final Report, November 1972 - July 1973," Hains, Frank D., Science Applications, Inc., Arlington, Virginia, Contract DNA-001-73-C-0054, SAI-73-211-AR, October 1973.

"Structure and Modification of Clouds and Fogs, Final Report, September 1967 - September 1973," Vonnegut, Bernard, State University of New York, Albany, Contract F-19628-68-C-0057, Project Themis, September 1973.

"Analysis of Random Fluctuations of Atmospheric Dust Concentrations," Henley, David C., Army Electronics Command, White Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory, ECOM-05530, January 1974.

"Atmospheric Effects Long Range Planning, Minutes of Meeting, Proceedings, 16 January 1973 - 17 January 1973," Defense Nuclear Agency, Washington, D.C., DNA-3171-P, October 1973.

"Nucleation Activity of Organic Cloud Seeding Agents," Fletcher, Aaron N., Naval Weapons Center, China Lake, California, NWC-TP-5592, December 1973.

"Abbreviated Tables of Thermodynamic Properties to 85 KM for the U. S. Standard Atmosphere, 1974," Kantor, Arthur J. and Cole, Allen E., Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Massachusetts, AFCRL-73-0687, November 1973.

"Specific Ionization in the Polar Atmosphere Due to Precipitating Heavy Particles," Kelley,,Joseph G. and Sellers, Bach, Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Massachusetts, AFCRL-73-0672, November 1973.

"Modeling the Chemical Kinetics of the Stratosphere," Hudson, Frank P., Sandia Laboratories, Albuquerque, New Mexico, SL-TM-72-0716, June 1973.

"Atmospheric Effects, Bibliography," Warner, Evelyn L., General Electric Company, Santa Barbara, California, DASIAC/DOD, Nuclear Information and Analysis Center, DASIAC-B-AE-73-01, Contract DNA-001-73-C-0019, July 1973.

"Prediction of Mesoscale Flows Over Complex Terrain," Anthes, Richard A. and Warner, Thomas T., Army Electronics Command, White Sands Atmospheric Sciences Laboratory, ECOM-05532, March 1974.

"Relation Between the Concentration of the Aerosol Particles and Weather Conditions," Meszaros, A., Army Foreign Science and Technology Center, Charlottesville, Virginia, FTSC-HT-23-090-71, April 1971.

"Microphysical and Meteorological Measurements of Fog Supersaturation," Low, Richard D. H., Army Electronics Command, White Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory, ECOM-05526, December 1973.

"Microphysical Evolution of Fog," Low, Richard D. H., Army Electronics Command, White Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory, ECOM-05533, March 1974.

"Condensation Nuclei and Aerosol Populations Related to Fog Formation, Final Report 02, June 1967 - December 1973," Ludwig, Francis L., Stanford Research Institute, Menlo Park, California, Contract DAHC-04-67-C-0059, January 1974.

"Studies of Atmospheric Processes, Semiannual Report 03," Fisher, Edward R., Wayne State University, Detroit, Michigan, Research Institute for Engineering Sciences, Contract F-19628-72-C-0007, December 1972.

"Thermal Warm Fog Dissipation, Heat Requirements and Projected Utilization of a System for Travis Air Force Base, California," Weinstein, Alan I., Air Force Cambridge Research Laboratories, L. G. Hamscom Field, Massachusetts, AFCRL-73-0367, June 1973.

"Environmental Pattern Reconstruction From Sample Data, a Case Study and Some General Conclusions, Final Report," McCammon, Richard B., Illinois University, Chicago, Contract N-00014-69-A-0090, September 1973.

"Initial Application of a Multi-Box Air Pollution Model to the San Francisco Bay Area," M. C. MacCracken, et al., UCRL-73944, May 30, 1972.

The mathematical development and initial application of the multi-box model for the San Francisco Bay Area is described. This is a two-dimensional time dependent model used to calculate mean concentrations and surface concentrations of passive and photochemical pollutants based on a modified version of Gear's technique for solving large sets of stiff ordinary differential equations. The frequency distributions calculated by the model reproduced the observed distributions reasonably well, despite the preliminary nature of the study.

"An Investigation of the Frequency Distributions of Surface Air-Pollutant Concentrations," J. B. Knox and R. I. Pollack, UCRL-74063, October 30, 1972.

The frequency distributions of surface air pollutant concentrations resulting from urban area and isolated continuous point sources are examined with respect to their observed relationship to meteorological conditions, and that implied by current modeling concepts and theories of turbulence. The lognormal frequency distribution is found to be empirically and theoretically appropriate for use in air pollution model verification, and land use plan assessment.

"A Predictive Model Based on the Relationship Between Meteorological and Emission Patterns and Air Quality," R. I. Pollack, UCRL-74577, February, 1973.

Based upon the identity of surface pollutant concentration frequency distributions, and their expected relationship to meteorological variables, a predictive model is proposed. A simple pattern recognition technique is employed to classify meteorological types, and the resulting types are correlated with the parameters of the frequency distribution associated observed with each.

"First Annual Report, DOT-CIAP Program," M. C. MacCracken, Principal Investigator, UCRL-51336, February 13, 1973.

This report describes a hierarchy of models each of which focuses on a discrete subproblem while contributing to the analysis of the larger problem of understanding the response of the atmosphere to specific perturbations. The effort includes: single plume and flight corridor models designed to determine the effects of aircraft wakes on atmospheric quasi-equilibrium concentrations; a general circulation model designed to determine climatic variations that might result from such perturbations as SST exhaust in the stratosphere; and a model simulating chemical and photochemical kinetics in the stratosphere.

"Numerical Modeling of the Transport, Diffusion, and Deposition of Pollutants for Regions and Extended Scales," J. B. Knox, UCRL-74666, March 1973.

A report is made on some developments in the numerical simulation of pollutant transport and diffusion including: development and verification of a Lagrangian large cloud diffusion code for intermediate to extended scales, a hybrid Lagrangian-Eulerian code for simulating pollutant distributions in stratified shear flow, a meteorological model for determining a regional mass consistent windfield, and the development and initial verification of a multi-box regional air pollution model.

"A Mass-Consistent Wind Field Model for the San Francisco Bay Area," M. H. Dickerson, UCRL-74265, April 23, 1973.

This model calculates a three-dimensional non-divergent windfield solution for a regional air shed such that the solution satisfies the kinematic boundary conditions of complex terrain, the time and space dependent behavior of the inversion capping the mixed layer, the conservation of mass, and the wind observations during a specified period.

"Program Report - FY-1973, Atmospheric Sciences Group, Physics Department, Lawrence Livermore Laboratory," UCRL-51444, August 28, 1973.

A description of unique G-Group modeling capabilities including a suite of numerical atmospheric models operating on a wide spectrum of scales, for a variety of source and pollutant types. The relationship between these capabilities and existing national needs is discussed.

"Reactor Safety Study: Part I, Methods of Calculating Atmospheric Transport," J. B. Knox, et al., October 1973.

Describes and helps verify a suite of three-dimensional models used to calculate long range surface air and ground concentrations which can result from a release of radioactive (or conventional) pollutant to the atmosphere. Topics covered include considerations of plume rise resulting from initial buoyancy and internal heating due to beta decay, meteorological measurements and analysis, site topography, transport, diffusion and the prescription of the diffusion parameters. Comparisons are made with experimental concentration measurements taken at the NRTS, Idaho Falls, and at Brookhaven.

"A Three-Dimensional Computer Code for the Study of Pollutant Dispersal and Deposition Under Complex Conditions," Rolf Lange, UCRL-51462, October 1973.

A three-dimensional particle diffusion code developed to calculate the evolution of a puff or plume in a transient atmospheric boundary layer

is presented. The model is based on the particle-in-cell (PIC) concept with the hydrodynamical aspects of the conventional PIC replaced by a given mass consistent windfield. The model considers the effects of advection, diffusion, decay and time varying meteorological and topographical conditions.

"Simulation of Chemical Kinetics Transport in the Stratosphere," J. S. Chang, A. C. Hindmarsh, and N. K. Madsen, UCRL-74823 (presented to the Symposium on Stiff Differential Systems, Wildbad, F.R.G.), October 1973.

This report describes the mathematical formulation of the treatment of stratospheric kinetic modeling and addresses the specific questions of the effect of supersonic transport injections and the evidence that nuclear testing in the 1960's affected the ozone concentrations.

"Dynamic-Kinetic Evolution of a Single Plume of Interacting Species," R. J. Gelinas and J. J. Walton, UCRL-75170 (submitted to J. Atmos. Sci.) October 1973.

This report describes the evolution of an SST injected plume from the end of the aircraft induced turbulence regime out to global scales, considering the effects of both dispersion and chemical transformation.

"Recent Studies of the Suspension of Desert Dust and Resuspension of Toxic Aerosol Due to Wind," W. M. Porch, UCRL-75194, December 1973.

Data collected on the resuspension of desert dust using fast response aerosol detection instrumentation is analyzed. Preliminary results indicate that resuspension can occur in association with comparatively low average wind velocities with a diurnal pattern.

"Reactor Safety Study: Part II, Dose Calculations for Three Nuclear Sites (Dresden, D. C. Cook, Turkey Point)," J. B. Knox, et al., December 1973.

This study uses the methodology described in Part I to calculate the individual and population dose for a postulated Class 9 nuclear power reactor accident at three topographically simple sites, each under two meteorological conditions.

"Surface Air Pollutant Concentration Frequency Distributions: Implications for Urban Modeling," J. B. Knox and R. Lange, JAPCA, 24 (1), 48-53, January 1974.

A comparison is made between observed surface air pollutant concentration frequency distributions and those produced by simple modeling concepts for urban area sources and continuous point sources. Passive pollutants emitted from urban area sources are found to produce approximately lognormal frequency distributions which closely parallel the reciprocal of windspeed. It is shown that the constant relating these distributions can be found either experimentally or using a numerical simulation model.

CONTROL

Instrumentation and Measurement

Fine Particulates

AD-686 554 7/4 9/1 8/4 8/10
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF CHEMISTRY

TRACE METALS. EQUILIBRIUM AND KINETICS OF TRACE METAL COMPLEXES IN NATURAL MEDIA. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS.
JAN 68 271P HATSON,WAYNE REINER I
CONTRACT: NONR-1841(74)
PROJ: DSR-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (•MICROANALYSIS, INSTRUMENTATION), (•COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY, ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM, REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD(METAL), COPPER, BISMUTH, THESES (U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF METAL IONS WAS BUILT USING THE CMGE. ANODIC STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED FOR OBTAINING INFORMATION ON THE COMPLICATED DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN, PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT. AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION CONSTANT K, AND THE RATE CONSTANTS KF AND KB FOR NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE METALS AND SEVERAL OTHERS - FE, MG, CO, NI, U. A PORTION OF THE TRACE METALS ATMOSPHERIC SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A UBIQUITOUS NONLABILE TRACE METAL COMPONENT WAS IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE STUDIED BRIEFLY.

AD-723 900 13/2 9/1
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: AIR POLLUTION - PARTICULATE MATTERS. VOLUME I. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY OCT 42-DEC 70.
MAY 71 133P
REPT. NO. DDC-TAS-70-90-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2. AD-515 700.

DESCRIPTORS: (•AIR POLLUTION, •PARTICLES), (•BIBLIOGRAPHIES, AIR POLLUTION), (•AEROSOLS, AIR POLLUTION), DUST, PARTICLE SIZE, DETECTION, ATMOSPHERIC MOTION, VOLCANOES, POLLEN, DIFFUSION, MONITORS, FALLOUT, COMBUSTION PRODUCTS, WASTES(INDUSTRIAL), EXPLOSIONS, ATMOSPHERIC CONDENSATION (U)
IDENTIFIERS: •AIR POLLUTION DETECTION (U)

THE ANNOTATED REFERENCES IN THE BIBLIOGRAPHY PERTAIN TO THE ANALYSIS OF ATMOSPHERIC AEROSOLS AND PARTICULATE MATTERS: SPECIFICALLY PARTICLE SIZE, MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF POLLUTANTS: THE ATMOSPHERIC MOTION OF AEROSOL PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION, AND TRANSPORT PROPERTIES, AND OTHER TOPICS SUCH AS VOLCANIC DUST AND POLLENS. THE REPORT CONTAINS 98 CITATIONS WITH ABSTRACTS. THE DATA SEARCHED COVERS FROM 1963 TO MARCH 1971. THE COMPUTER-GENERATED INDEXES INCLUDE SUBJECT AND PERSONAL AUTHOR. (U)

AD-674 791 14/2 20/5 14/5
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE STATION TENN

ANALYSIS OF THE TECHNIQUES FOR MEASURING PARTICLE SIZE AND DISTRIBUTION FROM FRAUNHOFER DIFFRACTION PATTERNS. (U)

DESCRIPTIVE NOTE: FINAL REPT. SEP 67-MAR 68, SEP 68 94P BELZ,RONALD A. I
REPT. NO. AEDC-TR-68-125
CONTRACT: F40600-69-C-0001
PROJ: AF-8219, ARO-BC6919
TASK: 821907

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO, INC., TULLAHOMA, TENN.

DESCRIPTORS: (*AEROSOLS, OPTICAL ANALYSIS), (*DIFFRACTION ANALYSIS, *PARTICLES), PARTICLE SIZE, DISTRIBUTION, COHERENT RADIATION, STEREOPHOTOGRAPHY, LASERS, OPTICAL EQUIPMENT COMPONENTS (U)
IDENTIFIERS: *HOLOGRAPHY, INTERFEROMETRY (U)

THE LOCATION AND SIZE OF PARTICLES WITHIN A VOLUME WHICH IS STATIONARY OR DYNAMIC CAN BE FOUND BY TWO TECHNIQUES OF COHERENT OPTICS. IN THE FIRST TECHNIQUE THE VOLUME IS ILLUMINATED WITH COHERENT LIGHT AND THE RESULTING DIFFRACTION PATTERNS ARE RECORDED IN THE FAR-FIELD (FRAUNHOFER REGION) OF THE PARTICLES. THE PARTICLE INFORMATION IS FOUND FROM THE RESULTANT DENSITY VARIATIONS ON THE FILM. IN THE SECOND TECHNIQUE THE DEVELOPED NEGATIVE (A FRAUNHOFER HOLOGRAM) IS ILLUMINATED WITH COHERENT LIGHT AND THE PARTICLE FIELD IS RECONSTRUCTED IN THREE DIMENSIONS. THIS INVESTIGATION IS AN ANALYSIS OF THESE TWO TECHNIQUES AND THEIR RELATIVE MERITS. BECAUSE MAGNIFICATION IS IMPORTANT IN THE SECOND TECHNIQUE THE METHODS OF MAGNIFYING THE VOLUME ARE DISCUSSED. IT IS FOUND THAT RECONSTRUCTING THE VOLUME FROM THE HOLOGRAM YIELDS PARTICLE INFORMATION WHICH IS EASIER TO OBTAIN THAN THE INFORMATION RESULTING FROM THE DIFFRACTION PATTERNS. THE VOLUME IS ALSO FOUND TO BE EASILY AND UNIFORMLY MAGNIFIED BY AN IMAGING LENS IN THE RECONSTRUCTION PROCESS. (AUTHOR) (U)

AD-751 898 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

TECHNICAL REPORT BIBLIOGRAPHY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 72 197P HOFFNAGLE,GALE F. I
REPT. NO. EHL-M-72M-14

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, AIR FORCE RESEARCH), (*WATER POLLUTION, AIR FORCE RESEARCH), (*INDUSTRIAL MEDICINE, AIR FORCE RESEARCH), (*RADIATION HAZARDS, AIR FORCE RESEARCH), CHEMICAL ANALYSIS, MICROWAVES, LASERS, ENTOMOLOGY, CALIFORNIA (U)
IDENTIFIERS: MCCLELLAN AIR FORCE BASE, *NOISE POLLUTION, ELECTROMAGNETIC RADIATION HAZARDS (U)

A BIBLIOGRAPHY OF ALL UNCLASSIFIED TECHNICAL REPORTS PREPARED BY USAF ENVIRONMENTAL HEALTH LABORATORY MCCLELLAN IS PRESENTED. IT CONTAINS A LISTING BY SUBJECT MATTER AND A LISTING OF ALL REPORTS BY YEAR WITH REPORT NUMBER AND ABSTRACT. THE REPORTS COVER MOST AREAS OF ENVIRONMENTAL TOPICS SUCH AS AIR, WATER, NOISE, AND RADIATION POLLUTION. (U)

AD-868 348 14/2 20/4 16/2
HOUSTON RESEARCH INST INC TEX

STUDY AND PRELIMINARY DESIGN OF A REAL TIME CHEMICAL SIMULANT SAMPLER. (U)

DESCRIPTIVE NOTE: INTERIM REPT. 3 FEB-27 JUN 67, SEP 67 79P
AUTHOR(S): HAUK,CHARLES E. HOCK, TIMOTHY C. STAFFIN,ROBERT I
REPT. NO. HRI-92000-1
CONTRACT: F08635-67-C-0061

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMAMENT DEVELOPMENT AND TEST CENTER, EGLIN AFB, FLA. 32542.

DESCRIPTORS: (*AEROSOLS, *SAMPLERS); (*OPTICAL SCANNING, AEROSOLS); SCATTERING, DISTRIBUTION, REAL TIME, PARTICLE SIZE, AUTOMATIC, CHEMICAL WARFARE AGENTS (U)

OVER SIX HUNDRED PAPERS, REPORTS, PATENTS, BOOKS, AND ITEMS OF MANUFACTURERS' LITERATURE WERE OBTAINED AND EVALUATED IN ORDER TO DETERMINE THE MOST APPLICABLE METHOD OF DETERMINING PARTICLE DIAMETERS IN THE RANGES FROM 0.8 TO 60 MICRONS AND FROM 100 TO 1000 MICRONS. FOURTEEN CLASSES OF METHODS ARE DISCUSSED, AND IT WAS CONCLUDED THAT A LIGHT BEAM SCAN METHOD IS THE MOST APPLICABLE, ON THE BASES OF PARTICLE SIZE RANGES, UNATTENDED OPERATION IN THE FIELD, AUTOMATED RESULTS, AND ESTIMATED RELATIVE COSTS IF MULTIPLE UNITS ARE LATER DESIRED. (AUTHOR) (U)

AD-902 506 13/2 4/4
DEFENCE STANDARDS LABS MARIBYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL SAMPLER. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE, JAN 72 15P
AUTHOR(S): THOMSON,G. H.
REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*ELECTROSTATIC PRECIPITATION, *SAMPLERS), AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES, VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY, COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT, SAMPLING, CONCENTRATION(CHEMISTRY), CONTROL, WASTES(INDUSTRIAL), AUSTRALIA, WASTE GASES (U)
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS (U)

THE EFFICIENCY OF AN MSA ELECTROSTATIC ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW RATE, APPLIED VOLTAGE, PARTICLE SIZE AND CONCENTRATION OF PARTICULATE MATTER. THE CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY DIFFERENT FROM THEORETICAL PREDICTIONS. (AUTHOR) (U)

AD-749 960 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: AIR POLLUTION-PARTICULATE MATTER. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 71-JUL 73. NOV 73 191P
REPT. NO. DDC-TAS-73-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*AEROSOLS, BIBLIOGRAPHIES), (*AIR POLLUTION, *PARTICULATES), (*BIBLIOGRAPHIES, AIR POLLUTION), FALLOUT, STRATOSPHERE, AIR, ATMOSPHERIC MOTION, POLLEN, EXHAUST GASES, TURBOJET ENGINES, JET ENGINES, TOBACCO, AIRCRAFT ENGINES, DUST, DIFFUSION, PARTICLE SIZE, CONTAMINATION, ATMOSPHERES, ATMOSPHERIC CONDENSATION (U)

THE BIBLIOGRAPHY IS COMPRISED OF 88 CITATIONS OF UNCLASSIFIED REPORTS DEALING WITH AIR POLLUTION - PARTICULATE MATTER IN A SERIES OF BIBLIOGRAPHIES ON ENVIRONMENTAL POLLUTION. SOME OF THE TOPICS INCLUDED ARE: ANALYSIS OF ATMOSPHERIC AEROSOLS AND PARTICULATE MATTER; SPECIFICALLY PARTICLE SIZE, MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF POLLUTANTS; THE ATMOSPHERIC MOTION OF AEROSOL PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION, AND TRANSPORT PROPERTIES; AND OTHER TOPICS SUCH AS DUST AND POLLENS. CORPORATE AUTHOR/MONITORING AGENCY, SUBJECT, TITLE, PERSONAL AUTHOR, CONTRACT, AND REPORT NUMBER INDEXES ARE INCLUDED. (AUTHOR) (U)

AD-756 051 9/1
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

SIZE DISTRIBUTION OF NATURAL AEROSOL PARTICLES. (U)

DEC 72 11P SAVKISOV,S. I
REPT. NO. FSTC-HT-23-2044-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VYSOKOGORNYI GEOFIZICHESKII INSTITUT. NALCHIK. TRUDY (USSR) N13 P88-96 1969.

DESCRIPTORS: (*AEROSOLS, *PARTICLE SIZE), PARTICLES, SAMPLERS, USSR (U)
IDENTIFIERS: PARTICLE SIZE, TRANSLATIONS (U)

THE AUTHORS PRESENT RESULTS OF A LARGE NUMBER OF TERRESTRIAL MEASUREMENTS IN THE USSR OF THE CONCENTRATIONS AND SPECTRAL DISTRIBUTIONS OF NATURAL AEROSOLS AT VARIOUS TIMES OF THE YEAR, OBTAINED WITH THE AID OF AN IMPACTOR. (U)

AD-740 871 4/1 20/6
MAINZ UNIV (WEST GERMANY) METEOROLOGISCH-GEOPHYSIKALISCHES INSTITUT

RESEARCH ON ATMOSPHERIC OPTICAL RADIATION TRANSMISSION. (U)

DESCRIPTIVE NOTE: FINAL SCIENTIFIC REPT. 1 JAN-31 DEC 71,
FEB 72 78P BART,ELISABETH DE IBULLRICH, KURT IEIDEN,REINER IESCHELBACH,GUENTER IHAENEL, GOTTFRIED I
CONTRACT: F61052-69-C-0016
PROJ: AF-7621
TASK: 762103
MONITOR: AFCRL 72-0180

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JAN 71, AD-722 538.

DESCRIPTORS: (*ATMOSPHERES, *LIGHT TRANSMISSION), (*AEROSOLS, ATMOSPHERES), (*AIR POLLUTION, PARTICLES), THERMAL RADIATION, PARTICLE SIZE, ABSORPTION, POLARIZATION, SCATTERING, REFRACTIVE INDEX, SKY BRIGHTNESS, HUMIDITY, TURBULENCE, REFLECTION, WATER VAPOR, HEAT TRANSFER, WEST GERMANY (U)
IDENTIFIERS: LIGHT SCATTERING, OPTICS, RADIATION, ATMOSPHERES, ATTENUATION, STOKES PARAMETERS (U)

TO ASSESS THE CONTRIBUTION OF PARTICULATE POLLUTANTS TO RADIATIVE PROCESSES AND RADIATIVE TRANSFER, IT IS NECESSARY TO KNOW THE RADIATION CHARACTERISTICS OF NATURAL AND ANTHROPOGENIOUS PARTICLES. THE REPORT DESCRIBES THE NUMBER AND THE SIZE OF THE ATMOSPHERIC AEROSOL PARTICLES AND THE POSSIBILITIES TO EVALUATE THEM BY OPTICAL METHODS. THEORETICAL RESULTS OF THE INFLUENCE OF ABSORBENT AEROSOL PARTICLES ON THE ENERGY BALANCE OF THE ATMOSPHERE IN THE VISIBLE WAVELENGTH RANGE ARE ALSO DISCUSSED. SOME MEASUREMENT RESULTS ARE GIVEN OF SPECTRAL SOLAR EXTINCTION AND SKY RADIANCES.

AD-912 723L 7/4 6/3
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVIL VA

CAPTURE AND MEASUREMENT OF AEROSOL PARTICLES. (U)

MAR 73 7P MESZAROS,E. I
REPT. NO. FSTC-HT-23-1228-72

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM HIVAT. KIADVANY. OMSZ. METEOR. INTEZ. (HUNGARY) V27 P72-76.

DESCRIPTORS: (*AEROSOLS, PARTICLE SIZE), (*SAMPLERS, AEROSOLS), SAMPLING, MICROSCOPY, GAS DETECTORS, CONCENTRATION(CHEMISTRY), DISTRIBUTION, AIR POLLUTION, PARTICLE SIZE, GAS FLOW, DENSITY, VELOCITY, MATHEMATICAL ANALYSIS, EQUATIONS, AIRBORNE, ORIFICES, IMPACT, VISUAL INSPECTION, AEROBIOLOGY, HUNGARY (U)
IDENTIFIERS: TRANSLATIONS (U)

THE DIFFERENT METHODS, BASED ON MECHANICAL PRINCIPLES, OF THE CAPTURE OF AEROSOL PARTICLES TO BE USED IN CONNECTION WITH AN EVALUATION BY OPTICAL MICROSCOPES ARE BRIEFLY DESCRIBED. CAPTURE BY SHEETS EXPOSED DIFFERENTLY TO AIR-FLOW, AND SPECIAL CAPTURE SYSTEMS CONTAINING SLITS ARE PRESENTED, AND THEIR EFFICIENCIES DISCUSSED. THE IMPORTANCE OF COMPUTATIONS AND MEASUREMENTS CONCERNING THE EFFICIENCY OF CAPTURE IS SUPPORTED BY SOME PRACTICAL EXAMPLES. (AUTHOR) (U)

D-805 615 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE VIRUS COLLECTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 65 122P RUHNKE,L. H. ;PRINS,H. ;
REPT. NO. 2911
CONTRACT: DA-18-064-AMC-2291(A)
PROJ: DA-52406

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*SAMPLERS, PARTICLE SIZE); (*VIRUSES, AIRBORNE); (*PARTICLES, CLASSIFICATION); INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS, ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, IONS, COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR POLLUTION, ELECTRON MICROSCOPY, TABLES(DATA), SAMPLING, DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY, MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY, CALCULATION OF INSTRUMENT DIMENSIONS, OPERATIONAL CONSIDERATIONS, MEASUREMENTS, DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-917 105L 15/2 17/6 17/9
NAVAL WEAPONS LAB DAHLGREN VA

PRELIMINARY EVALUATION OF LIDAR TECHNIQUES FOR ADVANCE WARNING OF BIOLOGICAL THREATS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 74 51P HOYE,WALTER E. ;
REPT. NO. NWL-TR-3005

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; FEB 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL WEAPONS LAB., DAHLGREN, VA. 22448.

DESCRIPTORS: (*BIOLOGICAL AEROSOLS, DETECTION), (*ULTRAVIOLET DETECTORS, BIOLOGICAL AEROSOLS), (*OPTICAL RADAR, BIOLOGICAL AEROSOLS), (*MATHEMATICAL MODELS, DETECTION), MICROORGANISMS, BACTERIAL AEROSOLS, FLUORESCENCE, ULTRAVIOLET SPECTRA, LIGHT SCATTERING, RAMAN SPECTRA, ATMOSPHERES, VISIBLE SPECTRA, TRYPTOPHAN, CHLOROPHYLLS, PROTEINS, NUCLEIC ACIDS, AMINO ACIDS, PEPTIDES, ESCHERICHIA COLI, ALGAE, MATHEMATICAL PREDICTION, EQUATIONS, QUANTUM EFFICIENCY, OPTICAL PROPERTIES (U)
IDENTIFIERS: *LIGHT DETECTION AND RANGING, LIDAR(LIGHT DETECTION AND RANGING) (U)

EQUATIONS HAVE BEEN DEVELOPED TO PREDICT THE CAPABILITIES OF LASER RADAR TECHNIQUES FOR DETECTION OF AIRBORNE MICROORGANISMS. IN ORDER TO DISCRIMINATE THREAT MICROORGANISMS FROM NORMAL ATMOSPHERIC CONTENTS, OPTICAL INTERACTIONS SUCH AS FLUORESCENCE AND RAMAN SCATTER MUST BE UTILIZED. SELECTED OPTICAL PROPERTIES OF MICROORGANISMS, MOSTLY BACTERIA, HAVE BEEN EXPLORED. PRELIMINARY EXPERIMENTAL RESULTS OF THE ULTRAVIOLET AND VISIBLE OPTICAL DENSITY, THE SPECTRAL FLUORESCENCE CHARACTERISTICS, AND THE FLUORESCENCE QUANTUM EFFICIENCY OF MICROORGANISMS ARE REPORTED. THE RESULTS ARE CORRECTED FOR INSTRUMENT BIASES AND, IN GENERAL, SHOW CHARACTERISTIC NUCLEIC ACID AND PROTEIN ABSORPTION IN THE ULTRAVIOLET WHILE TRYPTOPHAN AND CHLOROPHYLL FLUORESCENCE ARE PREDOMINANT. A PRELIMINARY VALUE OF 12 PERCENT WAS OBTAINED FOR THE TRYPTOPHAN QUANTUM EFFICIENCY OF ESCHERICHIA COLI. THE RESULTS ARE USED IN THE LIDAR EQUATIONS TO PREDICT THAT THE FLUORESCENCE TECHNIQUE DOES HAVE PROMISE OF DETECTING BACTERIA CONCENTRATIONS OF 3 X 10 TO THE 8TH POWER ORGANISMS/CUBIC METERS AT REMOTE(U)

AD-708 559 13/2 15/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

ROCKY MOUNTAIN ARSENAL, DENVER, COLORADO, 6 OCTOBER-31 DECEMBER 1969. (U)

DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC BACKGROUND STUDY.
MAY 70 120P REGAN,GERALD F. ;GALE, STEPHEN B. ;FORTS,KENNETH N. ;BARTELL,ROBERT P. ;NESS,THOMAS L. ;
REPT. NO. USAEHA-STUDY-21-005-70

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *COMBUSTION PRODUCTS), (*CHEMICAL WARFARE AGENTS, *DISPOSAL), (*MUSTARD AGENTS, DISPOSAL), PARTICLES, GB AGENT, MONITORS, NITROGEN OXIDES, SULFUR COMPOUNDS, DIOXIDES, CHLORIDES, HYDROCHLORIC ACID, QUALITY CONTROL, STANDARDS, MOUNTAINS, MILITARY FACILITIES, ARMY OPERATIONS (U)
IDENTIFIERS: *NITROGEN OXIDE(NO2), *AIR POLLUTION DETECTION, *HYDROGEN CHLORIDE, *SULFUR DIOXID, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

A NINE-STATION AIR MONITORING NETWORK WAS ESTABLISHED AT ROCKY MOUNTAIN ARSENAL TO OBTAIN PRESENT CONCENTRATIONS OF SELECTED POLLUTANTS (A BACKGROUND STUDY) AND TO MONITOR THE AIR QUALITY AT THE ARSENAL BOUNDARY DURING THE DEMILITARIZATION OF CERTAIN MUNITIONS. THIS BACKGROUND STUDY DETERMINED THE MAXIMUM AND MEAN CONCENTRATIONS OF NO2, SO2, TOTAL ACIDITY AS HCL, CL, AND SUSPENDED PARTICULATES. WIND SPEED AND DIRECTION WAS MEASURED AT EACH OF THE STATIONS. THE MAXIMUM AND MEAN CONCENTRATIONS WERE EVALUATED WITH RESPECT TO APPLICABLE REGULATIONS AND AIR QUALITY STANDARDS. FURTHER OBJECTIVES INCLUDED ESTABLISHING BURNING RATES, PROVIDING ON-THE-JOB TRAINING FOR ROCKY MOUNTAIN ARSENAL PERSONNEL, ASSISTING ARSENAL PERSONNEL IN DEVELOPING AN SOP ON MAINTENANCE OF THE NETWORK AND INCORPORATING ALERT PROCEDURES WITHIN THE SAMPLING NETWORK TO PRECLUDE THE POSSIBILITY OF EXCEEDING SPECIFIED LIMITS. THE AIR QUALITY AS DETERMINED DURING THIS SURVEY IS WELL WITHIN THE LIMITS OF THE AIR QUALITY STANDARDS. (AUTHOR) (U)

AD- 908 644L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS APPLICABLE TO ARMY AMMUNITION PLANTS. VOLUME I. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
JAN 73 228P NEAL,L. B. ;
REPT. NO. TRW-96020-009-VOL-I
CONTRACT: DAAA21-72-C-0625

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 28 MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, PICATINNY ARSENAL, ATTN: SMUPA-TS-T-S, DOVER, N. J. 07801.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907 216L.

DESCRIPTORS: (*AIR POLLUTION, *MUNITIONS INDUSTRY), (*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL), STANDARDS, LAW, ARMY, UNITED STATES, MILITARY FACILITIES, WASTE GASES, EXHAUST GASES, GASES, PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS, NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY, REMOVAL, ANALYSIS (U)
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION, STANDARDS, STACK GASES (U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER POLLUTION STANDARDS AND REGULATIONS. THE REPORT PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE FURTHER DETAILS. (AUTHOR) (U)

AD-909 483L 15/2 6/4 6/3
STANFORD RESEARCH INST MENLO PARK CALIF

FEASIBILITY OF OPTICAL REMOTE DETECTION TECHNIQUES. (U)

DESCRIPTIVE NOTE: STATUS REPT. NO. 2, 24 OCT 72-20 APR 73,
APR 73 37P OGLANAS,JOHN IROSS,DAVID I ANBAR,MICHAEL I
CONTRACT: DAAA15-72-C-0338
PROJ: SRI-2096

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 9 MAY 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-TL, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*BACTERIAL AEROSOLS, OPTICAL PROPERTIES), (*GAS DETECTORS, SAMPLING), AEROBIOLOGY, AIR POLLUTION, OPTICS, DETECTION, RAMAN SPECTROSCOPY, SCATTERING, FLUORESCENCE, PHOSPHORESCENCE, RESONANCE, ABSORPTION SPECTRA, BACKSCATTERING, RANGE(DISTANCE), REMOTE CONTROL, SENSITIVITY, BACKGROUND, FLUOROMETERS, OPTICAL TRACKING, PHOTOMULTIPLIER TUBES, SIGNAL-TO-NOISE RATIO, PARTICLES, PARTICLE SIZE, BAND SPECTRA, TRYPTOPHAN, ESCHERICHIA COLI, BACILLUS SUBTILIS, STAPHYLOCOCCUS AUREUS, PSEUDOMONAS AERUGINOSA, DISTRIBUTION (U)
IDENTIFIERS: DIFFERENTIAL ABSORPTION TECHNIQUES, MIE SCATTERING, OPTICAL DETECTION, LIGHT SCATTERING, RAMAN SPECTRA, STREPTOCOCCUS FACCIUM (U)

THE OBJECTIVE OF THIS RESEARCH IS TO CONDUCT EXPLORATORY STUDIES OF THE OPTICAL PROPERTIES OF CERTAIN AEROSOLS TO ESTABLISH THE FEASIBILITY OF DEVELOPING METHODS AND EQUIPMENT FOR THE REMOTE DETECTION OF AEROSOLS USING OPTICAL TECHNIQUES. (U)

AD-741 980 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

AIR POLLUTION. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 59-DEC 72.
JUN 73 353P
REPT. NO. DDC-TAS-73-27

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UPDATES REPORT DATED OCT 68, AD-679 210.

DESCRIPTORS: (*AIR POLLUTION, *BIBLIOGRAPHIES), WASTE GASES, EXHAUST GASES, CONFINED ENVIRONMENTS, CHEMICAL WARFARE AGENTS, CONTAMINATION, PURIFICATION, RADIOACTIVE CONTAMINATION, FALLOUT, WASTES(INDUSTRIAL), BIOLOGICAL WARFARE AGENTS, DUST, PARTICLES, SMOKE, DECONTAMINATION (U)
IDENTIFIERS: AIR POLLUTION CONTROL EQUIPMENT, AIRBORNE WASTES, INDUSTRIES, WASTES (U)

THE BIBLIOGRAPHY COMPRISES CITATIONS OF UNCLASSIFIED AND UNLIMITED REPORTS COVERING AIR POLLUTION, FROM BOTH NATURAL AND MAN-MADE SOURCES. REFERENCES PRIMARILY DEAL WITH CAUSES OF POLLUTION, THEIR DETECTION, CONTROL, TREATMENT AND ELIMINATION. CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, TITLE, AND PERSONAL AUTHOR INDEXES ARE INCLUDED. PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE. (U)

AD-781 672 4/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

USING THE METHOD OF LIGHT SCATTERING IN STUDYING BIOLOGICAL AEROSOL. (U)

JUN 74 9P FEDYAEV,S. F. ; BELYAKOV,V. A. ;

REPT. NO. FTD-HT-23-1498-74
PROJ: FTD-1T4-84-81

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO (USSR), N11 P699-701 NOV 71, BY DEAN F. W. KOOLBECK.

DESCRIPTORS: *BIOLOGICAL AEROSOLS, *VACCINES, *LIGHT SCATTERING, PARTICLE SIZE, CONCENTRATION(COMPOSITION), USSR, TRANSLATIONS (U)

THE PHOTOELECTRONIC METHOD FOR STUDYING PARTICLES OF POLYDISPERSED BIOLOGICAL AEROSOL VACCINES IN A FLOW OF AIR IS THE ONLY SUFFICIENTLY RELIABLE METHOD FOR STUDYING THE SPECTRUM OF AEROSOL PARTICLE SIZES, PERMITTING ANALYSIS OF THE NUMBER AND SIZE OF PARTICLES PER UNIT VOLUME, AND ALLOWING OBSERVATION OF THE KINETICS OF THE CHANGES IN PARTICLE CONCENTRATION IN THE COURSE OF THE EXPERIMENT. (U)

AD-894 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM AERIAL LINE SOURCES. (U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FREGE,JAMES E. ;
REPT. NO. DPG-DR-A502-8
PROJ: RDT/E-1-8-025001-A-128, USATECOM-8-8-9965-22

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDA-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DISTRIBUTION), (*BACTERIAL AEROSOLS), (*AEROSOL GENERATORS), AIRBORNE, DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE, TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING, UTILITY AIRCRAFT, BLOWERS, *POWDERS, SAMPLING, DOSAGE, AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION, ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS (U)
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT PIGMENT PARTICLES, FLUORESCENT PARTICLES, FP(FLUORESCENT PIGMENT), FP DISSEMINATORS MODEL D, GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE FILTERS, ROTOROD SAMPLERS, SKIL BLOWERS, U/A REPORTS, U-6 AIRCRAFT, U-8D AIRCRAFT, U-8A AIRCRAFT, U-9 AIRCRAFT, VERTICAL GRIDS, WINDSOCK SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND SPECIFIED RELEASE HEIGHTS (A502, PHASE A), THE SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS AND RELEASE HEIGHTS (A502, PHASE B). UPON COMPLETION OF FOURTEEN TRIALS UNDER PHASE B, THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL DESTRUCTION OF NONREPLACEABLE TEST APPARATUS PREMATURELY TERMINATED TESTING. THE SUCCESSFUL TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE RELEASES OF FLUORESCENT PIGMENT (FP) PARTICLES. SAMPLING WAS PERFORMED AT GROUND LEVEL TO A DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-896 833 4/2 13/2
ARMY BIOLOGICAL LABS FREDERICK MD

THE GROWTH OF CONDENSATION NUCLEI WITH RELATIVE HUMIDITY. (U)

JUL 68 10P JUNGE,C. I
REPT. NO. TRANS-250

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ANNALEN DER METEOROLOGIE (WEST GERMANY) P129-135 1950.

DESCRIPTORS: (*AEROSOLS, *NUCLEATION), HUMIDITY, VISIBILITY, DROPS, GROWTH(PHYSIOLOGY), SMOKE, GASES, AIR POLLUTION, FOG, SULFOXIDES, CONDENSATION, WEST GERMANY (U)
IDENTIFIERS: TRANSLATIONS, TURBIDITY (U)

AN EXPLANATION SHALL BE ATTEMPTED HERE CONCERNING THE GROWTH OF CONDENSATION NUCLEI WHICH PROCEEDS FROM THE CONSIDERATION THAT A VIGOROUS COAGULATION OF THE PARTICLES SETS IN, PARTICULARLY IN SMOKES, COMBUSTION GASES AND IN LARGE CITIES GENERALLY, AND THAT A LARGE PART OF THE NUCLEI REPRESENT MIXED NUCLEI WHICH CONTAIN PARTLY SOLUBLE, PARTLY INSOLUBLE SUBSTANCES. WHEN THE GROWTH OF SUCH NUCLEI IS CALCULATED, THE CURVES ARE OBTAINED, WHICH PROCEEDED FROM THE SAME POTENTIAL NUCLEAR RADIUS AS IN THE CASE OF PURE SOLUTIONAL DROPLETS, AND WHERE THE RADIUS OF THE SOLID PORTION OF THE SUBSTANCE IS INDICATED. IT IS EVIDENT THAT BELOW CA. 70% THE SOLID PORTIONS ARE ENVELOPED ONLY BY A RELATIVELY THIN SOLUTIONAL MEMBRANCE, AND THAT THE PARTICLE'S RADIUS BARELY CHANGES! A MORE OR LESS STRONGLY PRONOUNCED GROWTH OCCURS IN DIVERSE FASHION ONLY ABOVE THIS DEGREE OF HUMIDITY. (U)

AD-912 324L 21/5 13/2
NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION TECHNOLOGY AND PROJECT ENGINEERING DEPT

STATE-OF-THE-ART REVIEW ON AIR POLLUTION FROM GAS TURBINE ENGINES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 36P LINDENHOFEN,H. E. I
REPT. NO. NAPTC-PE-23

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY! TEST AND EVALUATION! JUL 73. OTHER REQUESTS FOR THIS DOCUMENT MSUT BE REFERRED TO COMMANDING OFFICER, NAVAL AIR PROPULSION TEST CENTER, TRENTON, N. J. 08628.

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*GAS TURBINES, AIR POLLUTION), AIRCRAFT ENGINES, CONTAMINATION, MEASUREMENT, REDUCTION, STATISTICAL ANALYSIS, INTENSITY, SAMPLING, HYDROCARBONS, CARBON MONOXIDE, SMOKE, COMBUSTION CHAMBERS, DESIGN, EFFICIENCY, AFTERBURNERS, PARTICLE SIZE, MEASURING INSTRUMENTS, OXIDES, NITROGEN OXIDES (U)
IDENTIFIERS: ABATEMENT, POLLUTION (U)

A STUDY OF THE PROBLEMS ASSOCIATED WITH AIR POLLUTION FROM AIRCRAFT GAS TURBINE ENGINES HAS IDENTIFIED MAJOR AREAS WHERE WORK IS NEEDED IN MEASUREMENT OF POLLUTANTS AND NTS AND REDUCTION OF POLLUTION LEVELS. IN THE AREA OF MEASUREMENT TECHNIQUES, PROBLEMS NEEDING INVESTIGATION ARE PARTICULATE MEASUREMENTS, STATISTICAL VARIATIONS IN POLLUTANT LEVELS, SAMPLING PROCEDURES AND REMOTE MEASUREMENT DEVICES. IN THE AREA OF THE REDUCTION OF POLLUTANTS WORK IS NEEDED IN REDUCTION OF HYDROCARBONS AND CO AT LOW POWER AND NO SUB X AT HIGH POWER, THE EFFECT OF SMOKELESS BURNERS ON PARTICULATES AND GASEOUS POLLUTANTS AND THE DESIGN OF MORE EFFICIENT AFTERBURNERS. (AUTHOR) (U)

AD-894 196L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

SECONDARY AEROSOL STUDY. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 23P HEREIM,A. T. IALAKE,GARY
W. IRANDALL,DAVID L. IRITCHIE,BRENT R. I
REPT. NO. DTC-TEST-70-73-VOL-1. DTC-FR-70-
073111
PROJ: RDT/E-1-X-665709-DL-11. USATFCOM-S-CO-973-
073-001

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; APR 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERET TEST CENTER, FORT DOUGLAS, UTAH
84113.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2. AD-894
196L.

DESCRIPTORS: (*BIOLOGICAL WARFARE, HAZARDS); (*BACTERIAL
AEROSOLS, *BIOLOGICAL CONTAMINATION); AEROSOLS, BOMBING,
SOURCES, SPRAYS, TEST METHODS, BIOLOGICAL WARFARE
CASUALTIES, SPORES, DEPOSITS, SURFACES (U)
IDENTIFIERS: *SECONDARY AEROSOLS (U)

THE OBJECTIVE OF THE TEST WAS TO EXAMINE THE
POTENTIAL SECONDARY AEROSOL HAZARD TO FRIENDLY TROOPS
FOLLOWING A BIOLOGICAL AGENT ATTACK. A SECONDARY
AEROSOL IS DEFINED AS BACTERIAL, TOXIC, OR VIRAL
PARTICLES RESUSPENDED IN THE AIR AFTER ONCE SETTLING
FROM A PRIMARY AEROSOL ATTACK OR AFTER THE BIOLOGICAL
AGENT HAS BEEN INTENTIONALLY DEPOSITED ON SURFACES.
THE TYPES OF BIOLOGICAL ATTACK SIMULATED IN THIS
STUDY WERE A LIQUID FILLED BOMBLET POINT SOURCE, AN
AERIAL LIQUID SPRAY LINE SOURCE, AND A SURFACE
DEPOSITION WITH DRY BIOLOGICAL SPORES. THE RESULTS
SHOWED THAT SECONDARY AEROSOLS WERE PRODUCED AFTER
PRIMARY AEROSOL GENERATION BY THE THREE METHODS
MENTIONED ABOVE. (AUTHOR) (U)

AD-894 196L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

SECONDARY AEROSOL STUDY. VOLUME II. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 134P HEREIM,A. T. IALAKE,GARY W
RANDALL,DAVID IRITCHIE,BRENT R
REPT. NO. DTC-TEST-70-73-VOL-2. DTC-FR-70-
073121
PROJ: RDT/E-1-X-665709-DL-11. USATFCOM-S-CO-973-
073-001
TASK: 1-X-665709-DL-1103

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; APR 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERET TEST CENTER, FORT DOUGLAS, UTAH
84113.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1. AD-894
196L.

DESCRIPTORS: (*BIOLOGICAL WARFARE, HAZARDS); (*BACTERIAL
AEROSOLS, *BIOLOGICAL CONTAMINATION); AEROSOLS, TEST
METHODS, SOURCES, BOMBING, SPRAYS, TABLES(DATA),
BIOLOGICAL WARFARE CASUALTIES, DEPOSITS, SURFACES,
SPORES (U)
IDENTIFIERS: *SECONDARY AEROSOLS (U)

THE OBJECTIVE OF THE TEST WAS TO EXAMINE THE
POTENTIAL SECONDARY AEROSOL HAZARD TO FRIENDLY TROOPS
FOLLOWING A BIOLOGICAL AGENT ATTACK. A SECONDARY
AEROSOL IS DEFINED AS BACTERIAL, TOXIC, OR VIRAL
PARTICLES RESUSPENDED IN THE AIR AFTER ONCE SETTLING
FROM A PRIMARY AEROSOL ATTACK OR AFTER THE BIOLOGICAL
AGENT HAS BEEN INTENTIONALLY DEPOSITED ON SURFACES.
THE TYPES OF BIOLOGICAL ATTACK SIMULATED IN THIS
STUDY WERE A LIQUID FILLED BOMBLET POINT SOURCE, AN
AERIAL LIQUID SPRAY LINE SOURCE, AND A SURFACE
DEPOSITION WITH DRY BIOLOGICAL SPORES. THE REPORT
DEALS WITH THE DETAILS AND PARTICULARS OF THE
PROGRAM. (AUTHOR) (U)

AD-849 300 6/13 13/8
FORT DETRICK FREDERICK MD

HOMOGENEOUS BACTERIAL AEROSOLS PRODUCED WITH A SPINNING DISK AEROSOL GENERATOR. (U)

DESCRIPTIVE NOTE: TECHNICAL MANUSCRIPT.
MAY 70 16P HARSTAD,J. BRUCE (FILLER, MELVIN E. (HUSHEN,WILLIAM T. (OECKER,HERBERT H.)
REPT. NO. SMUFD-TECHNICAL MANUSCRIPT-602. AMXFD-AE-T99821
PROJ: DA-1-B-662706-A-072
TASK: 1-B-662706-A-07202

UNCLASSIFIED REPORT

DESCRIPTORS: (*BACTERIAL AEROSOLS, PRODUCTION), AEROBIOLOGY, BACILLUS SUBTILIS, AEROSOL GENERATORS, PARTICLE SIZE, SPORES, CALIBRATION (U)
IDENTIFIERS: *SPINNING DISK AEROSOL GENERATORS (U)

HOMOGENEOUS BACTERIAL AEROSOLS WITH MEDIAN DIAMETERS BETWEEN 1 AND 5 MICRONS AND GEOMETRIC STANDARD DEVIATIONS AVERAGING 1.1 WERE PRODUCED WITH A COMMERCIAL SPINNING DISK AEROSOL GENERATOR FROM AQUEOUS SUSPENSIONS OF BACILLUS SUBTILIS VAR. NIGER SPORES CONTAINING VARIOUS AMOUNTS OF DEXTRAN TO REGULATE THE AEROSOL PARTICLE SIZE. (AUTHOR) (U)

AD-849 085 6/13 15/2
IIT RESEARCH INST CHICAGO ILL

EFFECT OF RELATIVE HUMIDITY ON PARTICLE SIZE DISTRIBUTION OF DRY BG AEROSOLS. (U)

DESCRIPTIVE NOTE: TEST REPT. 27 NOV 68-14 JAN 69.
JAN 69 27P MILLER,SOL (EHRLICH,RICHARD I)
REPT. NO. IITRI-L6032-TR-29
CONTRACT: DA-18-064-AMC-499(A)
PROJ: IITRI-L6032

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, HUMIDITY), (*BACILLUS SUBTILIS, BACTERIAL AEROSOLS), EFFECTIVENESS, RECOVERY, PARTICLE SIZE, DISTRIBUTION, DEGRADATION (U)

THE OBJECTIVE OF THIS EXPERIMENT WAS TO STUDY THE EFFECT OF HUMIDITY RANGING FROM 25% TO 99% RH ON AEROSOL CHARACTERISTICS OF BACILLUS SUBTILIS VAR. NIGER (BG) DISSEMINATED AS A DRY PREPARATION. THE ESTIMATES OF AEROSOL RECOVERY, AEROSOL SOURCE STRENGTH, AND THE PARTICLE SIZE DISTRIBUTION OF DRY BG CLOUDS WERE NOT SIGNIFICANTLY AFFECTED BY RELATIVE HUMIDITY IN THE AEROSOL CHAMBER. THE ESTIMATES OF TOTAL AEROSOL DECAY RATES, IRRESPECTIVE OF THE PARTICLE SIZE FRACTION, WERE LOWER AT 65% RH THAN AT THE OTHER HUMIDITIES STUDIED. (AUTHOR) (U)

AD-A11 068 15/2
FORT DETRICK FREDERICK MD

PARTICLE SIZE DISTRIBUTION OF DILUTE AEROSOLS DISSEMINATED AT HIGH RELATIVE HUMIDITY. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
FEB 67 19P DAY,WILLIAM C. BAILEY,
RUTH R. WALLACE,HENRY C. J
REPT. NO. SMUFD-TM-105
PROJ: DA-1-B-522301-A-080

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, PARTICLE SIZE), DISTRIBUTION, HUMIDITY, BACILLUS SUBTILIS, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, SAMPLING, DISTRIBUTION, SPORES, PARTICLES, MICROSCOPES (U)

AEROSOLS OF BACILLUS SUBTILIS VAR. NIGER, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, AND COXIELLA BURNETI WERE STUDIED IN TERMS OF PARTICLE SIZE DISTRIBUTION IN THE MILLION-LITER TEST SPHERE AT HIGH (85%) RELATIVE HUMIDITY. PARTICLE SAMPLES WERE COLLECTED FROM DILUTE AEROSOLS AT SELECTED TIME INTERVALS WITH A SEQUENTIAL IMPACTOR OVER AN AVERAGE AGING PERIOD OF 92 MINUTES. ANALYSIS OF THE PARTICLE SIZE DISTRIBUTION DATA AND OF THE DISTRIBUTION OF B. SUBTILIS SPORES WITHIN PARTICLES INDICATED THAT THE PARTICLE, VOLUME, AND SPORE MEDIAN DIAMETERS CHANGED LITTLE AS THE AEROSOL WAS DILUTED AND AGED; THAT THE AVERAGE NUMBER OF SPORES PER PARTICLE FOR ANY ONE PARTICLE SIZE DID NOT CHANGE SIGNIFICANTLY WITH TIME; THAT THE ORGANISM DISTRIBUTION WAS MORE CLOSELY RELATED TO PARTICLE VOLUME THAN TO PARTICLE NUMBER DISTRIBUTION; AND THAT IT WAS POSSIBLE TO ISOLATE AND DETERMINE THE SIZE OF SPORE-CONTAINING PARTICLES AT CONCENTRATIONS RANGING FROM ONE TO FIVE PARTICLES PER LITER OF AEROSOL IN THE PRESENCE OF ATMOSPHERIC DEBRIS. (AUTHOR) (U)

AD-A08 719 15/2
BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED TECHNOLOGY OPERATIONS

A STUDY OF AEROSOL PARTICLE FRACTIONATION BY CONTINUOUS PARTICLE ELECTROPHORESIS. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 1 SEP-30 NOV 66,
DEC 66 36P HUEBNER,VICTOR R. J
REPT. NO. PR-2434-3
CONTRACT: DA-18-064-AMC-496(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK MD. 21701.

DESCRIPTORS: (*AEROSOLS, ELECTROPHORESIS), (*BACTERIAL AEROSOLS, ELECTROPHORESIS), (*ELECTROPHORESIS, INSTRUMENTATION), SEPARATION, OPTICAL SCANNING, DENSITY, PARTICLES, SENSITIVITY, RESOLUTION, FLUID FLOW, MOBILITY, POLLEN, SPORES, BACILLUS SUBTILIS, CLAY (U)

THE NEW CONTINUOUS PARTICLE ELECTROPHORESIS (CPE) CELL HAS CONTINUED TO FUNCTION VERY WELL. THE OPTICAL SCANNER HAS BEEN MODIFIED IN ORDER TO IMPROVE ITS SENSITIVITY AND RESOLUTION. IT IS NOW CAPABLE OF PROVIDING USEFUL DATA ON BACTERIAL SEPARATIONS AND ELECTROPHORETIC MOBILITY VALUES. THE ELECTROPHORETIC MOBILITY VALUES WERE OBTAINED UNDER VARIOUS OPERATING CONDITIONS FOR REPRESENTATIVE TYPES OF PARTICLES. THE PRESENCE OF SURFACTANTS WAS FOUND TO ALTER THE ELECTROPHORETIC CHARACTERISTICS GREATLY. THE ADDITION OF A CATIONIC SURFACTANT TO THE SAMPLES PRIOR TO ELECTROPHORESIS PRODUCED ESPECIALLY INTERESTING RESULTS. IN THIS CASE, THE MOBILITY OF B. GLOBIGII WAS ONLY SLIGHTLY CHANGED, BUT ALL OTHER PARTICLES LOST THEIR NEGATIVE CHARGE, AND OBTAINED VERY LARGE POSITIVE CHARGES. THE USE OF DIVALENT CATIONS IN THE BUFFER SYSTEM ALSO PRODUCED SOME INTERESTING CHANGES IN THE ELECTROPHORETIC MOBILITY VALUES. IN THIS CASE, THE PARTICLES WERE MORE DEPENDENT ON PH VARIATIONS AND TENDED TO HAVE A GREATER PREPONDERANCE OF POSITIVE CHARGES ON THEIR SURFACE. (AUTHOR) (U)

AD-667 996 6/12 6/13
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL SAFETY EVALUATION OF AN INDUSTRIAL REFUSE INCINERATOR. (U)

FEB 68 6P BARBEITO,MANUEL S. ; GRFMILLION,GARDNER G. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN APPLIED MICROBIOLOGY, V16 N2 P291-6 1968.

DESCRIPTORS: (*INCINERATORS, STERILIZATION), (*BACTERIAL AEROSOLS, STERILIZATION), BIOLOGICAL CONTAMINATION, SAFETY, TEMPERATURE, VIABILITY, SPORES, DISTRIBUTION (U)

AN INDUSTRIAL REFUSE INCINERATOR WAS TESTED TO DETERMINE MINIMAL OPERATING TEMPERATURES REQUIRED TO PREVENT RELEASE OF VIABLE MICROORGANISMS INTO THE ATMOSPHERE. A LIQUID SUSPENSION OF BACILLUS SUBTILLIS VAR. NIGER SPORES WAS DISSEMINATED INTO THE FIREBOX AS AN AEROSOL, AND DRY SPORES MIXED WITH ANIMAL BEDDING WERE DUMPED INTO THE FIREBOX. THE MINIMAL REQUIREMENT FOR WET SPORES WAS 575F (302C) FOR THE FIREBOX AIR TEMPERATURE AND 385F (196C) FOR THE FIREBRICK REFRACTORY LINING. WHEN DRY SPORES WERE USED, THESE TEMPERATURES WERE 700 AND 385F (371 AND 196C), RESPECTIVELY. (AUTHOR) (U)

AD-668 791 6/12 6/13
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL EVALUATION OF A LARGE-VOLUME AIR INCINERATOR. (U)

MAR 68 6P BARBEITO,MANUEL S. ITAYLOR, LARRY A. ISEIDERS,REGINALD W. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN APPLIED MICROBIOLOGY, V16 N3 P490-6 1968.

DESCRIPTORS: (*INCINERATORS, LABORATORY EQUIPMENT), (*BACTERIAL AEROSOLS, STERILIZATION), PORTABLE EQUIPMENT, SPORES, TEMPERATURE, HEAT EXCHANGERS, COSTS, BACILLUS SUBTILIS, SERRATIA MARCESCENS (U)

TWO SEMIPORTABLE METAL AIR INCINERATORS, EACH WITH A CAPACITY OF 1,000 TO 2,200 STANDARD CU FT OF AIR PER MIN, WERE CONSTRUCTED TO STERILIZE INFECTIOUS AEROSOLS CREATED FOR INVESTIGATIVE WORK IN A MICROBIOLOGICAL LABORATORY. EACH UNIT HAS ABOUT THE SAME AIR-HANDLING CAPACITY AS A CONVENTIONAL AIR INCINERATOR WITH A BRICK STACK BUT COSTS ONLY ABOUT ONE-THIRD AS MUCH. THE UNITS ARE UNIQUE IN THAT THE BURNER HOUSING AND COMBUSTION CHAMBER ARE AIR-TIGHT AND UTILIZE A PORTION OF THE CONTAMINATED AIR STREAM TO SUPPORT COMBUSTION OF FUEL OIL. OPERATION IS CONTINUOUS. AEROSOLS OF LIQUID AND DRY SUSPENSIONS OF BACILLUS SUBTILIS VAR. NIGER SPORES AND DRY VEGATATIVE CELLS OF SERRATIA MARCESCENS WERE DISSEMINATED INTO THE TWO INCINERATORS TO DETERMINE THE CONDITIONS REQUIRED FOR STERILIZATION OF CONTAMINATED AIR, WITH THE LATTER ORGANISMS (CONCENTRATION 2.03 X 10 TO THE 7TH POWER CELLS/CU FT OF AIR), A TEMPERATURE OF 525F (274C), MEASURED AT THE FIREBOX IN FRONT OF THE HEAT EXCHANGER, WAS SUFFICIENT FOR STERILIZATION. TO STERILIZE 1.74 X 10 TO THE 7TH POWER AND 1.74 X 10 TO THE 9TH POWER WET SPORES OF B. SUBTILIS PER CU FT, THE REQUIRED TEMPERATURE RANGED FROM 525 TO 675F (274 TO 357C) AND 625 TO 700F (329 TO 371C), RESPECTIVELY. AIR-STERILIZATION TEMPERATURE VARIED WITH EACH INCINERATOR. THIS WAS BECAUSE OF INNATE DIFFERENCES OF FABRICATION, DIFFERENT SPORE CONCENTRATIONS, AND USE OF ONE OR TWO BURNERS. WITH DRY B. SUBTILIS SPORES (1.86 X 10 TO THE 8TH POWER/CU FT), A TEMPERATURE OF 700F WAS REQUIRED FOR STERILIZATION. WITH DRY SPORES, NO DIFFERENCE WAS NOTED IN THE STERILIZATION TEMPERATURE FOR THE TWO INCINERATORS. (AUTHOR) (U)

AD-711 915 4/13
FORT DETRICK FREDERICK MD

HOMOGENEOUS BACTERIAL AEROSOLS PRODUCED WITH A SPINNING-DISC-GENERATOR. (U)

APR 70 9P HARSTAD,J. BRUCE IFILLER, MELVIN E. IHUSHFN,WILLIAM T. IDECKER,HERBERT H. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V20 N1 P94-97 JUL 70.

DESCRIPTORS: (•BACTERIAL AEROSOLS, •AEROSOL GENERATORS), BACTERIA, BACILLUS SUBTILIS, CALIBRATION (U)

AEROSOLS COMPOSED OF VIABLE PARTICLES OF A UNIFORM SIZE WERE PRODUCED WITH A COMMERCIAL SPINNING-DISC GENERATOR FROM AQUEOUS SUSPENSIONS OF BACILLUS SUBTILIS VAR. NIGER SPORES CONTAINING VARIOUS AMOUNTS OF AN INERT MATERIAL, DEXTRAN, TO REGULATE AEROSOL PARTICLE SIZE. AEROSOLS COMPOSED OF SINGLE NAKED SPORES HAVING AN EQUIVALENT SPHERICAL DIAMETER OF 0.87 MICROMETER WERE PRODUCED FROM SPORE SUSPENSIONS WITHOUT DEXTRAN, WHEREAS AEROSOLS PRODUCED FROM SUSPENSIONS CONTAINING 0.001, 0.01, 0.1, AND 1% DEXTRAN HAD MEDIAN DIAMETERS OF 0.90, 1.09, 1.80, AND 3.62 MICROMETER, RESPECTIVELY. SUCH AEROSOLS, BOTH HOMOGENEOUS AND VIABLE, WOULD BE USEFUL FOR CALIBRATING AIR SAMPLING DEVICES, EVALUATING AIR FILTER SYSTEMS, OR FOR EMPLOYMENT WHEREVER AEROSOL BEHAVIOR MAY BE SIZE-DEPENDENT. (AUTHOR) (U)

AD- 901 602L 13/2
PICATINNY ARSENAL DOVER N J

GUIDE TO INSTRUMENTATION FOR MEASUREMENT AND CONTROL OF AIR AND WATER POLLUTANTS. REVISION 1. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 72 37P ROTH,MILTON I
REPT. NO. PA-TR-4380
PROJ: 9A-84114

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 21 JUL 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, ARMY MUNITIONS COMMAND, ATTN: AMCMU-MT, DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 3 SEP 71.

DESCRIPTORS: (•SAMPLERS, WASTES(INDUSTRIAL)), (•WASTES(INDUSTRIAL), MUNITIONS INDUSTRY), (•WATER POLLUTION, MEASUREMENT), (•AIR POLLUTION, MEASUREMENT), RDX, HMX, INSTRUMENTATION, TNT, MANUFACTURING, FILLING, TEMPERATURE, DISCOLORATION, MONITORS, OXIDIZERS, CARBON MONOXIDE, SULFUR COMPOUNDS, NITROGEN OXIDES, HYDROCARBONS, PARTICLES, IONS, COSTS, SOURCES, STANDARDS (U)

IDENTIFIERS: SULFUR DIOXID, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

RECOMMENDATIONS ARE GIVEN FOR APPLICATION OF COMMERCIALLY AVAILABLE INSTRUMENTATION THAT WILL BE GENERALLY SUITABLE FOR MONITORING AND/OR CONTROLLING AIR AND WATER POLLUTANTS GENERATED DURING THE MANUFACTURE AND LOADING OF AMMUNITION AT GOCO PLANTS. GENERAL REMARKS ARE INCLUDED ON CRITERIA FOR ASSOCIATED SAMPLING SYSTEMS. (AUTHOR) (U)

Shape Factors for Airborne Particles, Owen R. Moss, Los Alamos Scientific Laboratory, University of California, Los Alamos, N. M., Reprinted from American Industrial Hygiene Assn. Journal, Vol. 32, Apr 1971

Effect of Humidity on the Aerodynamic Size Characteristics of Nonhygroscopic Aerosols, M. I. Tillery, O. R. Moss, H. J. Ettinger, G. W. Royer, Los Alamos Scientific Laboratory, Univ. of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, Oct 1973

Production of Relatively Monodisperse Aerosols for Inhalation Experiments by Aerosol Centrifugation, P. Kotrappa, Fission Product Inhalation Labs., Lovelace Foundation for Medical Educa. and Res., Albuquerque, N. M. and Owen R. Moss, Los Alamos Scientific Labs, Univ. of Calif., Los Alamos, N. M., Reprinted from Health Physics, Vol 21, No. 4, pp. 531-535, 1971

Respirable Dust Characteristics of Polydisperse Aerosols, Owen R. Moss, Harry J. Ettinger, Los Alamos Scientific Labs., Univ. of Calif., Los Alamos, N. M., Reprinted from American Industrial Hygiene Assn. Journal, Vol 31, Sep-Oct 1970

A Concentric Aerosol Spectrometer, Marvin I. Tillery, Los Alamos Scientific Labs., University of Calif., Los Alamos, N. M., Presented at 1973 American Industrial Hygiene Assn. Conf., Boston, Mass., LA-UR 73-1049

Measured N_2O-N_2 Absorption at Five DF Laser Frequencies, F. S. Mills, R. K. Long, Ohio State University Electroscience Lab., Columbus, Ohio, Prepared for Rome Air Dev. Cen., AFSC, Griffiss AFB, Ny, Tech. Rpt No. RADC-TR-74-89, Mar 1974

Calculated Absorption Coefficients for Lo-Vibrational CO Laser Frequencies, R. K. Long, F. S. Mills, ElectroScience Lab., Dept. of Electrical Engineering, Ohio State Univ., Columbus, Ohio, Prepared for RADC, ASFC, Griffiss AFB, NY, Tech. Rpt No. RADC-TR-74-95, Mar 1974

Surface Air Pollutant Concentration Frequency Distributions: Implications for Urban Modeling, Joseph B. Knox, Rolf Lange, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., Reprinted from APCA Journal, Vol. 24, No1, Jan 1974

Characteristics of the Aerosol Produced from Burning Sodium and Plutonium, Harry J. Ettinger, William D. Moss, Harold Busey, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M.. Nuclear Science and Engineering: 30, 1-13 (1967)

Plutonium Aerosol Size Characteristics, John C. Elder, Manuel Gonzales, Harry J. Ettinger, Los Alamos Scientific Laboratory, Unv. of Calif. , Los Alamos, New Mexico, Preprint LA-UR 73-1326, Presented at 1973 Health Physics Society Meeting, Miami Beach, Florida, 1973

"Laser Doppler Velocity Measurements of Swirling Flows with Upstream Influence" by Orloff, Kenneth L. and Hartmut, H. B., University of California, Contractor Report No. CR 2284.

Synopsis: This report is a rather technically oriented report examining swirling flow in a rotating tube and measuring the velocity field in the tube by laser doppler anemometry.

"Electron Beam Fluorescence Diagnostics of a Ternary Gas Mixture" by Lewis, J. W. L. and Williams, W. D., Air Force Systems Command, Arnold Air Force Station, Tennessee, Report AEDC TR 7396, July 1973.

Synopsis: Electron Beam Fluorescence is used for spatially resolving the density of three gases in a flow field. The experimental apparatus and data acquisition in analysis procedures are discussed in the report.

"The Distribution of Small Particulates Which Act As Condensation and Freezing Nuclei, Final Report," Henderson, T. J., Atmospherics, Inc., Fresno, California, NWC-TP-4781, September 1969.

"Plutonium Aerosol Size Characteristics," J. Elder, et al, Los Alamos Scientific Laboratory, LA-UR73-1326, 1973.

"Effect of Particle Size on the Carrier Distillation Analysis of PuO_2," Martell, Calvin J., Los Alamos Scientific Laboratory, New Mexico, LA-5454, February 1974.

"Relations Between the Mass and Numerical Concentrations of Atmospheric Aerosol Particles" by Meszaros, A. N., Army Foreign Science and Technology Center, Charlottesville, Virginia, Translation Report FSTC-HT-23-099-71, March 1971.

Synopsis: This short document covers information concerning aerosols and fluid filters and particle size distribution.

"Powder Trail Generator for Visual Sighting of Target Drones," Werle, D., IIT Research Institute, Chicago, Illinois, Contract N-00123-72-C-0235, 1972.

"CONE: Control of Noxious Effluents, December 1972" by Don Silva, Air Force Weapons Laboratory AFWL-DE-TN-73-029, November 1973.

CONTROL
Instrumentation and Measurement
Other

AD-753 095 13/2 21/5 21/7
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB O-IO

ASSESSMENT OF POLLUTANT MEASUREMENT AND CONTROL GOALS FOR MILITARY AIRCRAFT ENGINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 72 71P BLAZOWSKI,WILLIAM S. ;
HENDERSON,ROBERT E. ;
REPT. NO. AFAPL-TR-72-102
PROJ: AF-3048, AF-3066
TASK: 304805, 306605

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*AIRCRAFT ENGINES, *EXHAUST GASES), REVIEWS, AIR FORCE, SPECIFICATIONS, STANDARDS, GAS ANALYSIS, SPARK IGNITION ENGINES, JET ENGINES, AFTERBURNERS, PARTICLES, CARBON MONOXIDE, HYDROCARBONS, NITROGEN OXIDES, PERFORMANCE(ENGINEERING), MILITARY REQUIREMENTS (U)
IDENTIFIERS: AIR POLLUTION STANDARDS, *AIRCRAFT EXHAUST, SMOKE, JET ENGINE EXHAUST (U)

THE PROBLEM OF MASS EMISSIONS FROM AIRCRAFT GAS TURBINE ENGINES IS BRIEFLY REVIEWED AND THE ASPECTS OF THIS PROBLEM WHICH ARE UNIQUE TO MILITARY AIRCRAFT OPERATION ARE DISCUSSED. POLLUTANT MEASUREMENT TECHNOLOGY AND THE EXISTING DATA BASE ARE SUMMARIZED AND CANDIDATE CONTROL TECHNIQUES ARE IDENTIFIED. PROPOSED ENVIRONMENTAL PROTECTION AGENCY REGULATIONS FOR AIRCRAFT ENGINE EMISSIONS ARE EXAMINED IN TERMS OF THEIR IMPACT ON AND APPLICATION TO MILITARY ENGINES. IT IS CONCLUDED THAT THE SPECIAL CONSIDERATIONS, BOTH PERFORMANCE AND OTHERWISE, WHICH MUST BE AFFORDED TO MILITARY AIRCRAFT PROHIBIT DIRECT APPLICATION OF THE EPA REGULATIONS. THE REPORT CONCERNS AIR FORCE EMISSION LIMITATION GOALS ESTABLISHED IN LIGHT OF THESE EFFORTS. MAXIMUM ALLOWABLE IDLE COMBUSTION INEFFICIENCY, OXIDE OF NITROGEN EMISSION (LBM/1000 LBM FUEL), AND SMOKE NUMBER ARE SPECIFIED. THE RATIONALE BEHIND USING THESE PARAMETERS, AND THE MEANS BY WHICH THE NUMERICAL GOALS WERE DERIVED ARE DISCUSSED. (AUTHOR) (U)

AD-666 564 7/4 9/1 8/9 8/10
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF CHEMISTRY

TRACE METALS. EQUILIBRIUM AND KINETICS OF TRACE METAL COMPLEXES IN NATURAL MEDIA. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS,
JAN 68 271P HATSON,WAYNE REINER ;
CONTRACT: NONR-1841(74)
PROJ: OSR-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (*MICROANALYSIS, INSTRUMENTATION), (*COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY, ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM, REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD(METAL), COPPER, BISMUTH, THESES (U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF METAL IONS WAS BUILT USING THE CMGE. ANODIC STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED FOR OBTAINING INFORMATION ON THE COMPLICATED DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN, PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT, AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION CONSTANT K, AND THE RATE CONSTANTS KF AND KB FOR NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE METALS AND SEVERAL OTHERS - FE, MN, CO, NI, U. A PORTION OF THE TRACE METALS ATMOSPHERIC SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A UBIQUITOUS NONLABILE TRACE METAL COMPONENT WAS IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE STUDIED BRIEFLY.

AD-667 383L 7/1 13/2
NAVAL SHIP ENGINEERING CENTER PHILADELPHIA PA PHILADELPHIA DIV

STACK GAS MITIGATION STUDIES - EVALUATION OF STACK GAS SULFUR TRIOXIDE CONDENSER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 70 15P SZCZEPANSKI,R. A. IDAUKAUS, J. S. I
REPT. NO. NAVSECPHILADIV-B-916-2
PROJ: SF013-06-30
TASK: 1827

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO COMMANDER, NAVAL SHIP ENGINEERING CENTER, ATTN: CODE 6140. HYATTSVILLE, MD. 20782.

DESCRIPTORS: (*CONDENSERS(LIQUEFIERS), *SULFUR COMPOUNDS), (*WASTE GASES, CONDENSERS(LIQUEFIERS)), HEAT EXCHANGERS, AIR POLLUTION, CHEMICAL ANALYSIS (U)
IDENTIFIERS: *AIR POLLUTION CONTROL EQUIPMENT, *SULFUR TRIOXIDE CONDENSERS, SULFUR DIOXIDE, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

AN EVALUATION WAS MADE OF THE USE OF A HEAT EXCHANGER TO CONDENSE THE CORROSIVE CONSTITUENT, SULFUR TRIOXIDE, FROM BOILER STACK GAS. AT THE CRUISING CONDITION 15,800 LB/HR OF STACK GAS PASSED THROUGH THE HEAT EXCHANGER AND WAS COOLED FROM 370 F TO 205 F. IT WAS FOUND THAT THE HEAT EXCHANGER REMOVED 73% OF THE SULFUR TRIOXIDE AND 11% OF THE SULFUR DIOXIDE. (AUTHOR) (U)

AD-867 059 15/2
CORNELL AERONAUTICAL LAB INC BUFFALO N Y ELECTRONICS RESEARCH DEPT

AEROSOL SAMPLING FOR PARTICLE SIZE ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JAN 69-JAN 70,
JAN 70 104P SCHNEEBERGER,R. F. I
SPRINGSTON,D. P. I
REPT. NO. CAL-AG-2754-E-1
CONTRACT: DAAA15-69-C-0317
PROJ: DA-1-B-56260-ZA-084
TASK: 1-B-56260-ZA-0840-Z

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSFE-A. EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AEROSOLS, PARTICLE SIZE), SAMPLERS, DISTRIBUTION, WIND TUNNEL MODELS, DESIGN, OPERATION, EFFICIENCY (U)
IDENTIFIERS: RCIS(ROTATING CUP IMPACTION SAMPLERS), *ROTATING CUP IMPACTION SAMPLERS (U)

THE PROGRAM HAD AS ITS OBJECTIVE THE DEVELOPMENT AND TEST OF A DEVICE CAPABLE OF PROVIDING ESTIMATES OF PARTICLE SIZE AND PARTICLE SIZE DISTRIBUTION IN AEROSOL CLOUDS FOR PARTICLES IN THE RANGE OF FROM 10 TO 160 MICRONS. THE DEVICE, DESIGNATED THE ROTATING CUP IMPACTION SAMPLER (RCIS), IS BASED ON IMPACTION THEORY, WHEREIN THE SAMPLING EFFICIENCY IS A FUNCTION OF THE IMPACTION PARAMETER, K, WHICH IS IN TURN A FUNCTION OF CUP RADIUS, CUP VELOCITY, AND PARTICLE SIZE. BY EMPLOYING SEVERAL CUPS OF DIFFERING SIZES AND SPEEDS, A RANGE OF IMPACTION PARAMETERS, AND THEREFORE SAMPLING EFFICIENCIES CAN BE ACHIEVED. THEN BY MEASURING THE AMOUNT OF AEROSOL MATERIAL COLLECTED IN EACH CUP AND COMPARING THE COLLECTIONS BETWEEN CUPS, MASS MEDIAN DIAMETER AND PARTICLE SIZE DISTRIBUTION MAY BE ESTIMATED. THE EXPERIMENTS PERFORMED HAVE DEMONSTRATED THE PARTICLE SIZING CAPABILITY, THOUGH PROBLEMS PRINCIPALLY IN THE AREA OF AEROSOL CLOUD DEFINITION IN THE TEST FACILITY EMPLOYED HAVE TENDED TO MASK THESE RESULTS. LIMITATIONS IN THE DESIGN AND APPLICATION HAVE BEEN ESTABLISHED AND AN OUTLINE OF THE DATA ACQUISITION AND PROCESSING PROCEDURES HAVE BEEN DEVELOPED. DIRECTIONS FOR FURTHER (U)

AD-749 960 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: AIR POLLUTION-PARTICULATE MATTER. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 71-JUL 73.
NOV 73 191P
REPT. NO. DDC-TAS-73-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*AEROSOLS, BIBLIOGRAPHIES), (*AIR POLLUTION, *PARTICULATES), (*BIBLIOGRAPHIES, AIR POLLUTION), FALLOUT, STRATOSPHERE, AIR, ATMOSPHERIC MOTION, POLLEN, EXHAUST GASES, TURBOJET ENGINES, JET ENGINES, TOBACCO, AIRCRAFT ENGINES, DUST, DIFFUSION, PARTICLE SIZE, CONTAMINATION, ATMOSPHERES, ATMOSPHERIC CONDENSATION (U)

THE BIBLIOGRAPHY IS COMPRISED OF 88 CITATIONS OF UNCLASSIFIED REPORTS DEALING WITH AIR POLLUTION - PARTICULATE MATTER IN A SERIES OF BIBLIOGRAPHIES ON ENVIRONMENTAL POLLUTION. SOME OF THE TOPICS INCLUDED ARE: ANALYSIS OF ATMOSPHERIC AEROSOLS AND PARTICULATE MATTER; SPECIFICALLY PARTICLE SIZE, MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF POLLUTANTS; THE ATMOSPHERIC MOTION OF AEROSOL PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION, AND TRANSPORT PROPERTIES, AND OTHER TOPICS SUCH AS DUST AND POLLENS. CORPORATE AUTHOR/MONITORING AGENCY, SUBJECT, TITLE, PERSONAL AUTHOR, CONTRACT, AND REPORT NUMBER INDEXES ARE INCLUDED. (AUTHOR) (U)

AD-696 891 13/2
MINNESOTA UNIV MINNEAPOLIS SCHOOL OF PHYSICS AND ASTRONOMY

THE VERTICAL DISTRIBUTION OF PARTICULATE MATTER NEAR THE SURFACE OF THE EARTH. (U)

DESCRIPTIVE NOTE: ATMOSPHERIC PHYSICS,
OCT 69 18P ROSEN,JAMES M. I
REPT. NO. AP-29
CONTRACT: N00014-67-A-0113

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JNL. OF AIR POLLUTION, V19 12P FEB 69.

DESCRIPTORS: (*AIR POLLUTION: MINNESOTA), (*AEROSOLS, DISTRIBUTION), DUST, PARTICLES, TRANSPORT PROPERTIES, ATMOSPHERIC SOUNDING, PHOTOELECTRIC MATERIALS, COUNTING METHODS, BALLOONS, DETECTORS, HUMIDITY, PARTICLE SIZE, WIND, VELOCITY, ATMOSPHERIC TEMPERATURE, PANAMA (U)
IDENTIFIERS: MINNEAPOLIS(MINNESOTA) (U)

THE VERTICAL DISTRIBUTION OF PARTICULATE MATTER NEAR MINNEAPOLIS AND PANAMA IS REPORTED AND THE INFLUENCE OF TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY ON THE DUST CONCENTRATION IS DISCUSSED. (AUTHOR) (U)

AD-728 103 20/1
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

ATTENUATION AND DISPERSION OF ACOUSTIC ENERGY BY ATMOSPHERIC DUST. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
MAR 71 54P HENLEY,DAVID C. (HOIDALE, GLENN B.)
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-18
MONITOR: ECOM 5370

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOUND TRANSMISSION, TROPOSPHERE), ATTENUATION, ABSORPTION, SCATTERING, DUST, TURBULENCE (U)
IDENTIFIERS: ATMOSPHERIC ATTENUATION (U)

INSIGHT INTO THE ROLE OF ATMOSPHERIC DUST IN THE ATTENUATION AND DISPERSION OF ACOUSTIC ENERGY IN THE LOWER TROPOSPHERE IS GAINED BY A COMPARISON OF THEORETICAL ATTENUATION COEFFICIENTS AND DISPERSION FUNCTIONS IN THE 1-10 MILLION HZ RANGE FOR THE MECHANISMS OF CLASSICAL ABSORPTION, MOLECULAR ABSORPTION, TURBULENT SCATTERING AND DUST ABSORPTION FOR THREE MODELS OF ATMOSPHERIC DUST CONDITIONS. OVER MOST OF THIS FREQUENCY RANGE THE ATTENUATION DUE TO DUST ABSORPTION IS MASKED BY ONE OR MORE OF THE OTHER ATTENUATING MECHANISMS, BUT AT THE LOWER FREQUENCIES THERE APPEAR TO BE PHYSICALLY REALIZABLE CONDITIONS OF HIGH DUST CONCENTRATION AND LOW TURBULENT SCATTERING WHEREIN DUST ABSORPTION MAY BECOME SIGNIFICANT. ALSO, AT THE LOWER FREQUENCIES THE ABSOLUTE MAGNITUDE OF THE DISPERSION FUNCTION DUE TO DUST IS MUCH GREATER THAN THAT DUE TO CLASSICAL AND MOLECULAR ABSORPTION. (AUTHOR) (U)

AD-739 302 9/2
ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N MEX
ATMOSPHERIC SCIENCES LAB

TEMPORAL VARIATIONS IN THE NATURE OF ATMOSPHERIC DUST ABOVE AN INTERIOR DESERT BASIN. (U)

JUN 69 18P HOIDALE,GLENN B. (BLANCO, ABEL J.)

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ARCHIVE FUER METEOROLOGIE, GEOPHYSIK UND BIOKLIMATOLOGIE, SERIES A, V19 P71-88 1970.
SUPPLEMENTARY NOTE: SUMMARY IN GERMAN.

DESCRIPTORS: (*AEROSOLS, DUST), INFRARED SPECTROSCOPY, SAMPLING, ATMOSPHERIC MOTION, DISTRIBUTION FUNCTIONS, NEW MEXICO (U)
IDENTIFIERS: *ATMOSPHERES, *COMPOSITION(PROPERTY) (U)

QUALITATIVE INFRARED MICROSPECTROPHOTOMETRIC ANALYSIS OF 99 SIX-HOUR SAMPLES OF ATMOSPHERIC DUST COLLECTED DURING APRIL AND MAY 1968 AT A MOUNTAIN LABORATORY IN SOUTH CENTRAL NEW MEXICO, U.S.A., REVEALED A SYSTEMATIC, METEOROLOGICALLY INTERPRETABLE, TEMPORAL VARIATION IN THE MINERAL CONSTITUENCY OF THE DUST. THE RATIO OF SILICATE CLAYS TO CARBONATES WAS HIGH DURING THE EARLY MORNING, AT TIMES OF CONVECTIVE ACTIVITY AND PRECIPITATION, AND AT TIMES OF COLD FRONTAL PASSAGE FROM THE EAST; IT WAS LOW DURING THE AFTERNOON AND AT TIMES OF CONVECTIVE INACTIVITY AND NO PRECIPITATION. THE LOW RATIO DUST IS ATTRIBUTED TO ADVECTION OF FRESH CONTINENTAL PARTICLES FROM THE EXCHANGE LAYER OVER THE ADJACENT BASIN AND MOUNTAINS AND THE HIGH RATIO DUST TO ADVECTION OF FRESH CONTINENTAL PARTICLES FROM THE WESTERN GREAT PLAINS AND AGED CONTINENTAL PARTICLES FROM THE FREE ATMOSPHERE. (AUTHOR) (U)

AD-697 108 9/2 16/1
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

VARIATIONS IN THE ABSORPTION SPECTRA OF ATMOSPHERIC DUST. (u)

OCT 69 96P HOIDALE,G. B. (BLANCO,A. J. (JOHNSON,N. L. (DOOREY,R. V. (
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-20
MONITOR: ECOM 5274

UNCLASSIFIED REPORT

DESCRIPTORS: (*GUIDED MISSILE RANGES, METEOROLOGICAL PHENOMENA), (*ATMOSPHERES, DUST), INFRARED SPECTROSCOPY, AEROSOLS, SAMPLING, ABSORPTION, PARTICLES, INTENSITY, BAND SPECTRA, CONVECTION(ATMOSPHERIC), SOILS, CLAY, SILICATES, AIRBORNE, SULFATES, AMMONIUM COMPOUNDS, DIURNAL VARIATIONS, MEXICO (u)
IDENTIFIERS: GREAT PLAINS (u)

SIX IMPACTOR AND 99 MEMBRANE FILTER SAMPLES OF ATMOSPHERIC DUST WERE COLLECTED ATOP A MOUNTAIN IN SOUTH CENTRAL NEW MEXICO DURING APRIL AND MAY 1968. QUALITATIVE ANALYSIS OF THESE SAMPLES BY INFRARED ABSORPTION SPECTROSCOPY IN THE 4000 TO 250/CM WAVENUMBER (2.5 TO 40 MICRON WAVELENGTH) RANGE REVEALED THAT THE POSITIONS AND RELATIVE INTENSITIES OF THE ABSORPTION BANDS WERE DEPENDENT ON THE SIZE FRACTION OF THE DUST AND ON THE TIME THE SAMPLE WAS TAKEN. WITHIN THE 1250 TO 770/CM (8 TO 13 MICRON) ATMOSPHERIC WINDOW, THE MICRON-SIZED (GIANT) PARTICLES EXHIBITED A PEAK ABSORPTION AT 1027/CM (9.7 MICRON), WHEREAS THE SUBMICRON (LARGE) PARTICLES HAD THEIR PEAK ABSORPTION AT 1108/CM (9.0 MICRON). THESE TWO ABSORPTION BANDS ARE INDUCED, RESPECTIVELY, BY SILICATE CLAYS AND BY AMMONIUM SULFATE. A TEMPORAL VARIATION WAS OBSERVED IN THE RATIO OF THE INTENSITIES OF THE 1027/CM (9.7 MICRON) SILICATE AND THE 1428/CM (7.0 MICRON) CARBONATE ABSORPTION BANDS OF THE GIANT PARTICLES. THIS RATIO WAS HIGH DURING THE EARLY MORNING, AT TIMES OF CONVECTIVE ACTIVITY AND PRECIPITATION AND AT TIMES OF COLD FRONTAL PASSAGE FROM THE EAST; IT WAS LOW DURING THE AFTERNOON AND AT TIMES OF CONVECTIVE INACTIVITY AND NO PRECIPITATION.

AD-712 989 9/1
EDGEWOOD ARSENAL MD

SPECTRAL ABSORPTION CHARACTERISTICS OF THE MAJOR COMPONENTS OF DUST CLOUDS. (u)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 68-DEC 69.
SEP 70 96P FLANIGAN,DENNIS F. (
DELONG,HARRY P. (
REPT. NO. EA-TR-9930
PROJ: DA-1-C-622401-A-102
TASK: 1-C-622401-A-10202

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERES, DUST), (*DUST, LIGHT TRANSMISSION), (*MINERALS, INFRARED SPECTROSCOPY), ABSORPTION SPECTRA, SOILS, CLAY MINERALS, CARBONATES, CALCIUM COMPOUNDS, INFRARED RADIATION, SILICATES, CLOUDS, SAMPLING (u)
IDENTIFIERS: DUST CLOUDS (u)

IT IS WELL KNOWN THAT DUST CLOUDS SELECTIVELY ABSORB RADIATION IN THE 700 TO 1300/RECIPROCAL CM. ATMOSPHERIC WINDOW REGION. STUDIES HAVE SHOWN THAT DUST CLOUDS ARE COMPOSED OF THE SAME MINERALS AS SURFACE SOILS, ALTHOUGH IN DIFFERENT PROPORTION. SEVENTY SOIL SAMPLES WERE EXAMINED FROM A NUMBER OF LOCATIONS AROUND THE WORLD TO DETERMINE THEIR COMPOSITIONS AND SPECTRAL CHARACTERISTICS. THE RESULTS INDICATE THAT THERE ARE FIVE MAJOR COMPONENTS THAT SELECTIVELY ABSORB RADIATION IN THE 700 TO 1300/RECIPROCAL CM. REGION. THESE ARE THREE CLAY MINERALS, SILICA, AND CALCIUM CARBONATE. ABSORPTIVITY COEFFICIENT SPECTRA OF REPRESENTATIVE SOIL SAMPLES ARE GIVEN IN THE BODY OF THE REPORT, AND TRANSMISSION SPECTRA OF ALL SOIL SAMPLES ARE GIVEN IN THE APPENDIX. (AUTHOR) (u)

AD-761 950 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

AIR POLLUTION. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 59-DEC 72.
JUN 73 383P
REPT. NO. DDC-TAS-73-27

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UPDATES REPORT DATED OCT 68, AD-679 210.

DESCRIPTORS: (*AIR POLLUTION, *BIBLIOGRAPHIES), WASTE GASES, EXHAUST GASES, CONFINED ENVIRONMENTS, CHEMICAL WARFARE AGENTS, CONTAMINATION, PURIFICATION, RADIOACTIVE CONTAMINATION, FALLOUT, WASTES(INDUSTRIAL), BIOLOGICAL WARFARE AGENTS, DUST, PARTICLES, SMOKE, DECONTAMINATION (U)
IDENTIFIERS: AIR POLLUTION CONTROL EQUIPMENT, AIRBORNE WASTES, INDUSTRIES, WASTES (U)

THE BIBLIOGRAPHY COMPRISES CITATIONS OF UNCLASSIFIED AND UNLIMITED REPORTS COVERING AIR POLLUTION, FROM BOTH NATURAL AND MAN-MADE SOURCES. REFERENCES PRIMARILY DEAL WITH CAUSES OF POLLUTION, THEIR DETECTION, CONTROL, TREATMENT AND ELIMINATION. CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, TITLE, AND PERSONAL AUTHOR INDEXES ARE INCLUDED. PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE. (U)

AD-759 856 4/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

STRATOSPHERIC AEROSOL MEASUREMENTS WITH IMPLICATIONS FOR GLOBAL CLIMATE. (U)

AUG 72 11P ELTERMAN,LOUIS (TOOLIN, ROBERT S. (ESSEX,JOHN D. (
REPT. NO. AFCRL-TR-73-0260
PROJ: 4F-7621
TASK: 762108

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED OPTICS, V12 N2 P330-337 FEB 73.

DESCRIPTORS: (*STRATOSPHERE, AEROSOLS), DENSITY, CLIMATE, LIGHT TRANSMISSION, ATMOSPHERES, AIR POLLUTION (U)

THE AUTHORS PRESENT MEASUREMENT RESULTS OBTAINED IN NEW MEXICO WITH BISTATIC OPTICAL PROBING OF THE ATMOSPHERE USING A SEARCHLIGHT BEAM. THE DATA YIELD VERTICAL PROFILES OF THE AEROSOL ATTENUATION COEFFICIENT. BECAUSE THEY APPROXIMATE PROPORTIONALITY TO AEROSOL CONCENTRATION, THESE PROFILES PROVIDE INFORMATION CONCERNING THE AEROSOL LAYER STRUCTURE AND ITS PARAMETERS. DURING A 9-DAY PERIOD IN OCTOBER AND NOVEMBER 1970, A SERIES OF FORTY-ONE SUCH PROFILES WAS OBTAINED WHICH INCLUDES ALTITUDES 12-25 KM, SELECTED FOR STUDY BECAUSE OF THE RELATIVELY HIGH AEROSOL CONTENT OF THIS STRATOSPHERIC REGION AND ITS RELATION TO GLOBAL CLIMATE. THE MEAN STRATOSPHERIC AEROSOL DISTRIBUTION FOR THIS PERIOD IS DOUBLE LAYERED WITH MAXIMA AT 15.6 KM AND 19.3 KM. AN EARLY PHASE OF VOLCANIC DUST INCURSION IS EXAMINED. (AUTHOR MODIFIED ABSTRACT) (U)

A New Method of Cockroach Control on Submarines, J. A. Mulrennan, Jr., R. H. Grothaus, C. L. Hammond, J. M. Lamdin, Navy Disease Vector Ecology and Control Center, Naval Air Station, Jacksonville, Florida, Reprinted from Journal of Economic Entomology, Vol. 64, No. 5, pp. 1196-1198, Oct 1971

An Assessment of Instrumentation and Monitoring Needs for Significant Air Pollutants Emitted by Air Force Operations and Recommendations for Future Research on Analysis of Pollutants, Leo Parts, Wm. D. Ross, et al, Monsanto Res. Corp., Dayton, Ohio and Robert E. Sievers, Joseph J. Brooks, Chemistry Res. Lab, Aerospace Res. Lab, Wright-Patterson AFB, Ohio, ARL-TR-74-0015, Feb 1974

"The Mechanisms of Fallout Particle Formation, Annual Progress Report for period ending June 1971," by Benck, Ralph A., et al, United States Army Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland, Report No. BRLMR2304.

Synopsis: Emphasis in this report is on understanding the nucleation or condensation of gaseous product elements into various solid substrates. Results obtained are useful in making general predictions regarding condensation behavior on oxide and metal substrates.

"Simple Method for Measuring Absolute Diffuse Reflectance With a Laboratory Spectrophotometer," Lindberg, James D., Army Electronics Command, White Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory, ECOM-05521, November 1973.

'Optimal Control of Sulfur Dioxide Emissions at Power Stations, Models and a Case Study," Patel, Nitin R., Massachusetts Institute of Technology, Cambridge, Operations Research Center, Contract DAHC-04-73-C-0032, Thesis, September 1973.

"Evaluation of Emission Control Strategies for Sulfur Dioxide and Particulates in the St. Louis Metropolitan Air Quality Control Region," Argonne National Laboratory, IIPP-5, October 1971.

CONTROL
Chemical Processes

AD-696 865 9/1 7/4
ASSOCIATED LABS FOR THE PHYSICS OF AEROSOLS PARIS (FRANCE)

FORMATION AND EVOLUTION OF NUCLEI OF CONDENSATION THAT APPEAR IN AIR INITIALLY FREE OF AEROSOLS. (U)

68 10P BRICARD,JEAN (BILLARD, FRANCOIS (MADELAINE,GUY (

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN JNL. OF GEOPHYSICAL RESEARCH, V73 N19 P6067-6076, 15 JUL 68.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CENTER OF NUCLEAR STUDIES, FONTENAY AUX ROSES (FRANCE). SPONSORED IN PART BY OFFICE OF NAVAL RESEARCH.

DESCRIPTORS: (*NUCLEI, CONDENSATION), (*AEROSOLS, NUCLEATION), COUNTING METHODS, PARTICLES, GASES, DIURNAL VARIATIONS, TEST FACILITIES, IONS, AIR POLLUTION, SOLAR RADIATION, CONCENTRATION(CHEMISTRY), ATMOSPHERES, FRANCE (U)

IDENTIFIERS: SULFUR DIOXIDE (U)

THE FORMATION OF NUCLEI OF CONDENSATION IN AIR INITIALLY CLEANSED OF AEROSOL PARTICLES BY FILTRATION HAS BEEN INVESTIGATED. SUCH FORMATION MAY BE ACHIEVED IN THE DARK. THE FORMATION PROCESS IS ACCELERATED BY THE ACTION OF SUNLIGHT OR BY THE INTRODUCTION INTO THE CHAMBER OF THORON FREE FROM ACTIVE DEPOSIT. THE EVOLUTION OF THESE PARTICLES IN TIME, AS WELL AS THEIR STATE OF CHARGE, HAS BEEN STUDIED, AND AN IMPORTANT INFLUENCE OF COAGULATION ON THE PROCESS HAS BEEN FOUND. THE POSSIBLE ROLE OF SUCH PARTICLES AS REGARDS THE ORIGIN AND BEHAVIOR OF THE PROPERTIES OF NATURAL AEROSOLS MUST BE CONSIDERED. (AUTHOR) (U)

AD-807 986 13/2 6/11
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE STATION TENN

A TRACE CONTAMINANT ANALYSIS TEST ON AIR SAMPLES. PHASE II. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., FEB 67 93P MCCABE,J. R. (
REPT. NO. AEDC-TR-67-19
CONTRACT: AF 40(600)-1200
PROJ: ARO-T60609

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO, INC., TULLAHOMA, TENN.

DESCRIPTORS: (*AIR POLLUTION, CLOSED ECOLOGICAL SYSTEMS), (*AIR, CLOSED ECOLOGICAL SYSTEMS), CRYOGENICS, LOW TEMPERATURE, CHEMICAL ANALYSIS, CARBON DIOXIDE, SAMPLING, CONTAMINATION, VOLUME, WEIGHT, CHROMATOGRAPHIC ANALYSIS, GAS CHROMATOGRAPHY, CONCENTRATION(CHEMISTRY) (U)

DETAILS OF TRANSFERRING AND CONCENTRATING CONTAMINANTS FROM 150-CC STAINLESS STEEL CRYOGENIC TRAPS TO SMALL VOLUME GLASS TRAPS MORE SUITABLE TO TRACE ANALYSIS AND GAS CHROMOTOGRAPHIC EQUIPMENT USED IN ANALYSIS, ALONG WITH ANALYSIS PROCEDURES USED, ARE PRESENTED. THE CHROMOTOGRAPHIC INSTRUMENTATION, CALIBRATIONS, AND DATA ASSIMILATION PROCEDURES ARE DESCRIBED. BASIC TEST RESULTS AND OBSERVATIONS CONCERNING THE UTILITY OF PROCEDURES USED, ALONG WITH COMPARATIVE DISCUSSIONS OF VARIOUS ASPECTS OF PHASE 2 COMPARED WITH PHASE 1, ARE NOTED. (AUTHOR) (U)

AD-729 896 6/11 13/10 7/4
NAVAL RESEARCH LAB WASHINGTON D C

CHEMICAL RESEARCH IN NUCLEAR SUBMARINE ATMOSPHERE PURIFICATION. (U)

DESCRIPTIVE NOTE: PROGRESS REPT.,
JUN 70 61P PIATT,V. R. IRANSKILL,E.
A. I
REPT. NO. NRL-7037
PROJ: NRL-C08-05, SF35-433-02
TASK: 13213

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL PROGRESS REPT. NO. 5, AD-698 505.

DESCRIPTORS: (*LIFE SUPPORT, *SUBMARINES), (*CONFINED ENVIRONMENTS, CONTAMINATION), (*HYDROCARBONS, AIR POLLUTION), (*CARBON DIOXIDE, AIR POLLUTION), ORGANIC SOLVENTS, FLUOROHYDROCARBONS, UNDERWATER VEHICLES, CONTROL, SAMPLING, PAINTS, HALOGENATED HYDROCARBONS, FIRE RESISTANT COATINGS, CLEANING COMPOUNDS, EXHAUST GASES, GAS CHROMATOGRAPHY, MASS SPECTROSCOPY, MARINE NUCLEAR PROPULSION (U)
IDENTIFIERS: METHANE/DICHLORODIFLUORO, NUCLEAR POWERED SHIPS, SUBMARINES, *AIR POLLUTION CONTROL EQUIPMENT, *AIR POLLUTION DETECTION, *HOPCALITE CATALYSTS (U)

CONSIDERABLE PROGRESS HAS BEEN MADE IN DEVELOPING BOTH LABORATORY AND SHIPBOARD METHODS OF SAMPLING, ANALYSIS, AND CONTROL, BUT MAJOR SHIPBOARD ANALYSTICAL EQUIPMENT CONTINUES TO BE OF MARGINAL QUALITY. SOME OF THE TOPICS COVERED INCLUDE A FIRE-RETARDANT AND NONTOXIC PAINT SYSTEM FOR APPLICATION WHEN NECESSARY DURING SUBMERGENCE, ATMOSPHERIC CONTAMINATION WITH A CLEANING SOLVENT, THE NRL TOTAL HYDROCARBON ANALYZER, CATALYZED COMBUSTION OF VARIOUS TYPES OF ATMOSPHERIC CONTAMINANTS, AND CO2 ABSORPTION PROPERTIES OF SOME NEW AMINES. (AUTHOR) (U)

AD-724 096 9/1 13/2
ISTITUTO DI FISICA DELL'ATMOSFERA ROME (ITALY)

CONDENSATION NUCLEI MEASUREMENTS IN AN URBAN AREA. (U)

MAR 70 7P COLACINO,M. (FRANCO,R. (
VIVONA,F. M. (
REPT. NO. IFA-CP-230

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ATMOSPHERIC ENVIRONMENT, V4 P993-996 1970. NO COPIES FURNISHED BY DDC OR NTIS.

DESCRIPTORS: (*ATMOSPHERES, AEROSOLS), (*AIR POLLUTION, URBAN AREAS), CONDENSATION, NUCLEATION, COUNTING METHODS, HUMIDITY, EXHAUST GASES, HEATING, PARTICLES, ITALY (U)

SYSTEMATIC COUNTINGS OF CONDENSATION NUCLEI WERE CARRIED OUT AT IFA--CHEMICAL LABORATORY (ROME, ITALY) WITH A NOLAN-POLLAK NUCLEI COUNTER. THE DATA WERE ELABORATED EVERY MONTH AND SHOW THAT: (1) DRY WEATHER WITH AN OVERCAST SKY IS GENERALLY ASSOCIATED WITH A LARGE NUMBER OF NUCLEI; ON THE CONTRARY, CLEAR SKY IS ALMOST ALWAYS ASSOCIATED WITH A SMALLER NUMBER OF NUCLEI. THIS BEHAVIOUR IS EXPLAINED BY THE FACT THAT OVERCAST SKY CORRESPONDS TO A SUBSIDENCE SITUATION, WHILE CLEAR SKY IS ASSOCIATED WITH STRONG WINDS, WHICH CAUSE AIR TURBULENCE AND, AS CONSEQUENCES, AIR MIXING AND A DECREASE IN THE CONDENSATION NUCLEI NUMBER; (2) DURING RAIN THE CONDENSATION NUCLEI NUMBER IS LOW DUE TO THE WASH-OUT EFFECT OF THE PRECIPITATION; (3) A REMARKABLE CORRELATION BETWEEN AIR RELATIVE HUMIDITY AND CONDENSATION NUCLEI NUMBER WAS FOUND. (AUTHOR) (U)

AD-679 337 4/1 13/2
NAVAL INTELLIGENCE COMMAND WASHINGTON D C TRANSLATION DIV

THE USE OF IONIZATION METHODS IN DETERMINATION OF ATMOSPHERIC IMPURITIES (K VOPROSU O PRIMENENII IONIZATSIONNYKH METODOV PRI OPREDELENII ATMOSFERNYKH ZAGRYAZNENII). (U)

APR 67 8P DMITRIEV,M. T. (KITROSSKII, N. A.)

REPT. NO. NIC-TRANS-2377

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GIGIENA I SANITARIYA (USSR) V31 N7 P54-59 1966.

DESCRIPTORS: (*ATMOSPHERES, CHEMICAL ANALYSIS), (*AIR POLLUTION, USSR), IONIZATION, METEOROLOGY, MECHANICAL PROPERTIES, THERMIONIC EMISSION, COMPUTER PROGRAMMING, ELECTRIC DISCHARGES, ARGON, ELECTRON CAPTURE, DETECTION (U)
IDENTIFIERS: PHOTOIONIZATION, TRANSLATIONS (U)

THE ESSENTIAL FEATURE OF IONIZATION METHODS BASED UPON THE USE OF MATTER IN ITS PLASMA-LIKE STATE IS THE FACT THAT DURING PHYSICOCHEMICAL ANALYSIS OF THE AIR, ARE TRANSFORMED INTO DETERMINABLE GASEOUS IONS WHICH CAN THEN BE IDENTIFIED AND MEASURED BY ELECTRONIC COMPUTERS. CONCENTRATIONS OF IONS AND SMALL ION CURRENTS ARE WIDELY DETERMINED IN MODERN INSTRUMENT-BUILDING, AND CALCULATIONS ARE EVEN BEING CONDUCTED OF SEPARATE IONS. IONIZATION METHODS, THANKS TO THE USE OF APPROPRIATE RADIOELECTRONIC MEANS, HAVE CONSIDERABLE ADVANTAGES OVER THE USUAL MEANS OF CHEMICAL ANALYSIS. THEY ASSURE UNIFORMITY AND PRECISION OF MEASUREMENT, RAPIDITY OF DETERMINATION AND AUTOMATIC REGISTRATION OF THE RESULTS RECEIVED. (AUTHOR) (U)

AD-809 786 15/2
MELPAR INC FALLS CHURCH VA

RESEARCH ON NEW AND MORE EFFECTIVE APPROACH TO BIOLOGICAL AGENT DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY STATUS REPT. NO. 3, 1 AUG-1 NOV 66.
NOV 66 52P USDIN,V. (GREGOIRE,R. C. ; SMITH,J.)
CONTRACT: DA-18-064-AMC-497(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORFIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DETECTION), (*BACTERIAL AEROSOLS, *DETECTION), (*VIRUSES, DETECTION), FLUORESCENCE, BIOLOGICAL STAINS, TEMPERATURE, PURIFICATION, ENZYMES, PH FACTOR, AMINO ACIDS, CHYMOTRYPSIN, THIOCYANATES, AGGLUTININS, BACILLUS SUBTILIS, ESCHERICHIA COLI, PROTEUS VULGARIS, SERRATIA MARCESCENS, PSEUDOMONAS AERUGINOSA, WESTERN EQUINE ENCEPHALOMYELITIS VIRUS (U)

THIS REPORT DESCRIBES THE RESEARCH PERFORMED, AND THE RESULTS OBTAINED, ON A PROGRAM DESIGNED TO DEVELOP MORE EFFECTIVE APPROACHES TO THE PROBLEM OF DETECTING SMALL NUMBERS OF AEROSOLIZED MICROORGANISMS AMONG OTHER NORMALLY PRESENT AIRBORNE PARTICLES. THE PROGRAM WAS DIVIDED INTO TWO TECHNICAL AREAS: (1) LABELED MACROMOLECULES AND (2) RESUSPENSION AND PURIFICATION OF SMALL POPULATIONS OF VIRUS. AN INTRODUCTION AND SUMMARY COMPRISE SECTIONS 1 AND 2; SECTIONS 3 AND 4 DESCRIBE PROGRESS IN THE TWO TECHNICAL AREAS; AND SECTION 5 PRESENTS THE ADMINISTRATIVE AND COST ANALYSIS OF THE PROGRAM. IN SUMMARY, THE FOLLOWING TECHNICAL ACHIEVEMENTS HAVE BEEN MADE: (1) STAINING OF MICROORGANISMS WITH FLUORESCEIN ISOTHIOCYANATE-LABELED MACROMOLECULES HAS BEEN CARRIED OUT IN THE PRESENCE OF NORMAL AIR CONTAMINANTS AND WETTING AGENTS. THE EFFECTS OF PH AND TEMPERATURE ON STAINING INTENSITY HAVE BEEN INVESTIGATED. FITC-LABELED CHYMOTRYPSIN, PREPARED BY TWO DIFFERENT PROCEDURES, HAS BEEN CHARACTERIZED IN TERMS OF ENZYMATIC ACTIVITY. (2) IT WAS FOUND THAT HEMAGGLUTININS FROM TISSUE-CULTURE-GROWN STOCKS OF WEE VIRUS ARE STABLE FOR OVER 2 HOURS AT PH 7.0 AND PH 8.9 AT 4, 25, AND 37 C.

AD-889 193 19/2
GENERAL DYNAMICS CORP SAN DIEGO CALIF CONVAIR AEROSPACE DIV

DEVELOPMENT OF HCL AND HF DETECTION SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUN 70-2 JUN 71,
JUN 71 73P BARTLE,E. ROY (HECKSTROTH, EDGAR A. (KAYE,SAM (
CONTRACT: FD9611-70-C-0064
MONITOR: AFRPL TR-71-59

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS DETECTORS, *ACIDS), (*MONITORS, *EXHAUST GASES), (*AIR POLLUTION, GAS DETECTORS), HYDROGEN COMPOUNDS, CHLORIDES, FLUORIDES, GAS FILTERS, INFRARED SPECTROSCOPY, CONCENTRATION(CHEMISTRY), HYDROCHLORIC ACID, DESIGN (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, GAS FILTER CORRELATION SYSTEMS, *FLUORIDES, *HYDROGEN, *HYDROGEN CHLORIDE, ROCKET EXHAUST (U)

THE GAS FILTER CORRELATION (GFC) TECHNIQUE FOR DETECTING HCL AND HF HAS BEEN DEMONSTRATED IN THE LABORATORY. THE BASIC IDEA OF THIS TECHNIQUE IS THAT A SAMPLE OF GAS CAN PROVIDE AN EFFICIENT SELECTIVE FILTER FOR ABSORBING INFRARED RADIATION EMITTED FROM A POLLUTED MIXTURE OF ATMOSPHERIC CONSTITUENTS. IN OPTICAL INSTRUMENT TERMS, SPECTRAL RESOLUTIONS OF BETTER THAN 0.1/CM MAY BE ACHIEVED. THUS, A HIGH SPECIFICITY IS ATTAINED FOR THE DETECTION OF A PARTICULAR POLLUTANT. A LABORATORY GFC INSTRUMENT HAS BEEN DEVELOPED AND APPLIED TO DETECT HCL AND HF OVER A CONCENTRATION RANGE OF 0.1 TO 2500 PPM AND DEMONSTRATED TO BE INSENSITIVE TO OTHER POSSIBLE INTERFERING PROPELLANT VAPORS. THE TEST PROCEDURES FOR CONDUCTING THE EXPERIMENTS ARE DESCRIBED. SERIOUS PROBLEMS WERE ENCOUNTERED IN THE SAMPLE CELL OF THE INSTRUMENT NAMELY, WALL ABSORPTION AND CHEMICAL REACTION EFFECTS. THESE PROBLEMS WILL ARISE IN ANY TYPE OF INSTRUMENT THAT USES A SAMPLE CELL OR SAMPLING SYSTEM. RECOMMENDATIONS ARE MADE AS TO HOW THESE PROBLEMS MAY BE ELIMINATED IN A PROPERLY DESIGNED GFC FIELD INSTRUMENT THAT DOES NOT REQUIRE A SAMPLE CELL OR SAMPLING SYSTEM. (AUTHOR) (U)

AD-821 836 15/2 6/5
BIONETICS RESEARCH LABS INC FALLS CHURCH VA

INVESTIGATIONS ON IMMUNOLOGICAL AND IMMUNOCHEMICAL APPROACHES TO BIOLOGICAL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 1 JUL-30 SEP 67,
OCT 67 15P BOZICEVICH,JOHN J
CONTRACT: DAAA13-67-C-0207
PROJ: DA-1B622401A071

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORFIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *TOXIC AGENT ALARMS), (*IMMUNOLOGY, DETECTION), IMMUNE SERUMS, CLAY MINERALS, FLUORESCENT ANTIBODY TECHNIQUES, ANTIGENS + ANTIBODIES, ENZYMES, PAPAIN, SERRATIA MARCESCENS, PARTICLES, PARTICLE SIZE, BACILLUS SUBTILIS, AIRBORNE, STANDARDIZATION, PREPARATION, FLUID FILTERS (U)

DURING THE SUBJECT FIRST QUARTER OF THE CONTRACT PERIOD, ATTEMPTS WERE MADE TO INCREASE THE ACTIVITY OF ANTIBODY REAGENTS, TO PREPARE BENTONITE SUSPENSIONS OF KNOWN CATION COMPOSITION, AND TO DETERMINE THE FEASIBILITY OF USING GLASS CAPILLARY FILTERS IN THE FILTER FLUORESCENCE TEST. PAPAIN DIGESTION WAS EMPLOYED FOR ENZYMATIC FRAGMENTATION OF S. MARCESCENS ANTISERUM GLOBULIN. THE PROCEDURE EMPLOYED GAVE A PREPARATION WITH LESS ANTIBODY ACTIVITY PER MILLIGRAM OF PROTEIN THAN THE ORIGINAL ANTISERUM. THIS WAS PROBABLY DUE TO PROTEIN LOST THROUGH DENATURATION AND PRECIPITATION. ATTEMPTS TO PREPARE FIVE DIFFERENT CATION-SATURATED BENTONITES INDICATED THAT CATION COMPOSITION DOES HAVE AN EFFECT ON THE DEGREE OF SWELLING OF BENTONITE PARTICLES IN AQUEOUS MEDIA. (U)

AD-752 523 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

AIR POLLUTION POTENTIAL FROM ELECTROPLATING OPERATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 69 18P DIAMOND,PHILIP F
REPT. NO. EHL-E68-43

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTROPLATING, AIR POLLUTION), (*AIR POLLUTION, *WASTES(INDUSTRIAL)), MILITARY FACILITIES, AIR FORCE, NITROGEN OXIDES, CYANIDES, CHROMIUM COMPOUNDS, CORROSIVE GASES, ACIDS (U)
IDENTIFIERS: NITROGEN OXIDE(NO2), HYDROGEN CHLORIDE, HYDROGEN CYANIDE (U)

MEASUREMENTS WERE MADE OF EMISSION RATES FROM ELECTROPLATING OPERATIONS CONSIDERED TO HAVE MAXIMUM AIR POLLUTION POTENTIAL. SAMPLING WAS PERFORMED AT MCCLELLAN AND ADDITIONAL DATA FROM A PREVIOUS SURVEY AT HILL AIR FORCE BASE WAS USED. VALUES OBTAINED WERE EXTREMELY LOW. BASED ON EXISTING FEDERAL STANDARDS, NO COLLECTORS ARE SPECIFICALLY REQUIRED FOR ELECTROPLATING EMISSIONS. EXPERIENCE OF STATE AND INDUSTRY AIR POLLUTION PERSONNEL, HOWEVER, INDICATES THAT CHROME PLATING AND STRONG CAUSTIC EMISSIONS DO REQUIRE COLLECTORS. (AUTHOR) (U)

AD-920 015L 15/2 17/8
BENDIX CORP BALTIMORE MD ENVIRONMENTAL SCIENCE DIV

DEVELOPMENT OF A CHEMILUMINESCENCE DETECTOR. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NOV 73-JAN 74,
FEB 74 93P WELLS,HENRY S. , JR.
REPT. NO. EIR-1010
CONTRACT: DAAA15-73-C-0011
PROJ: DA-1-W-763720-D-165
TASK: 1-W-763720-D-16501
MONITOR: ED CR-74012

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 3 JUN 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, EDGEWOOD ARSENAL, ATTN: SAREA-TS-R, ABERDEEN PROVING GROUND, MD. 21010.

DESCRIPTORS: (*CHEMILUMINESCENCE, DETECTORS), (*BIOLOGICAL AEROSOLS, *DETECTORS), (*TOXIC AGENT ALARMS, CHEMILUMINESCENCE), BREADBOARD MODELS, PROTOTYPES, PRODUCTION ENGINEERING, RELIABILITY, MAINTAINABILITY, HUMAN FACTORS ENGINEERING, PERFORMANCE(ENGINEERING), COOLING, MODIFICATION KITS, SYSTEMS ENGINEERING, PUMPS, COLLECTING METHODS, PHTHALIC ACIDS, AIR, SAMPLERS, IMPURITIES, ADDITIVES, SOLUTIONS(MIXTURES), FIELD TESTS, BACKGROUND, ABSORPTION SPECTRA, ULTRAVIOLET RADIATION, LUMINESCENCE, TAPES (U)
IDENTIFIERS: LUMINOL (U)

THIS REPORT DESCRIBES FIELD TESTING OF PHASE II PROTOTYPE DETECTORS, DEVELOPMENT OF A DESIGN FOR A SMALLER REFILL KIT, REFINEMENT OF COMPONENT DESIGNS, PROCUREMENT AND PRELIMINARY TESTING OF NEW COLLECTOR-CONCENTRATORS, PROCUREMENT AND FABRICATION OF PARTS AND SUBASSEMBLIES FOR PHASE III DETECTORS. SUPPORT SERVICES DATA AND CONCLUSIONS ARE INCLUDED. (AUTHOR) (U)

AD-722 744 14/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME 1. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 68-AUG 70.
MAR 71 72P
REPT. NO. DDC-TAS-70-86-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-818 261.

DESCRIPTORS: (*GAS DETECTORS, *BIBLIOGRAPHIES), ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION, CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS DETECTORS COMPILED FROM THE DEFENSE DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS, ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

147

AD-784 813 7/4 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING SO2, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,
AUG 74 22P DEE,L. A. (HARTENS,H. H.
(HAKAMURA,J. T.)
REPT. NO. AFRPL-TR-74-54
PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE, *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE OXIDES, LITHIUM CARBONATES, *AIR POLLUTION DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE (SIF4) USING THE SOLID SORBENT TECHNIQUE WAS INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN. SORBENTS INCLUDED LI2CO3, PBO2, AND MNO2. (U)

AD-803 219 15/3
GENERAL ELECTRIC CO SYRACUSE N Y ELECTRONICS LAB

BIOLOGICAL AEROSOL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 15 AUG-15 NOV 66.
NOV 66 15P ROBERTS,R. N. I
CONTRACT: DA-18-064-AMC-493(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY BIOLOGICAL LABS., FORT DETRICK, FREDERICK, MD. 21701. ATTN: TECHNICAL RELEASES SECTION, TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (*BIOLOGICAL WARFARE, NUCLEI(BIOLOGY)), (*BACTERIAL AEROSOLS, *AMINES), (*NUCLEI(BIOLOGY), *TOXIC AGENT SIMULANTS), FLUID FILTERS, SENSITIVITY, SAMPLING, AMMONIA, GAS DETECTORS, PLASTICS, GAS CHROMATOGRAPHY, SERRATIA MARCESCENS, CELLS(BIOLOGY), STABILITY (U)
IDENTIFIERS: CONDENSATION NUCLEI, DETECTORS, CONVERTERS, MODIFICATION (U)

THIS CONDENSATION NUCLEI DETECTOR WAS IMPROVED BY MODIFICATIONS TO TUBING AND VALVES. THE AMMONIA CONVERTER WAS REDESIGNED AND CONSTRUCTED AS AN INTEGRATED PYREX UNIT RESULTING IN A LOWER BACKGROUND AND HIGHER SENSITIVITY. BIOLOGICALLY IMPORTANT AMINES WERE FOUND TO BE READILY DETECTED. A STUDY OF CORONA CONVERSION PRODUCTS WAS INITIATED. SAMPLES SUPPLIED BY FORT DETRICK WERE ANALYZED. (AUTHOR) (U)

148

AD-894 319L 15/2 13/13
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL: XM51. (U)

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 95P MARTIN,DONALD E. (MARABLE, LARRY C. I
REPT. NO. DPG-DR-6823
PROJ: RDT/E-1-8-693606-0-017, USATECOM-8-6-6242-11
TASK: 1-8-693606-0-01704

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDA-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SHELTERS), (*BIOLOGICAL WARFARE AGENTS, SAFETY DEVICES), (*BACTERIAL AEROSOLS, RECOVERY), (*BACILLUS SUBTILIS), (*SERRATIA MARCESCENS), SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION, COUNTERMEASURES, SAMPLING, CONCENTRATION(CHEMISTRY), INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY, DECONTAMINATION (U)
IDENTIFIERS: AEROSOL RECOVERY, ALL GLASS IMPINGERS), AIRLOCK STRUCTURES, ALL GLASS IMPINGERS, BG AGENTS, M-873 BIOLOGICAL CHALLENGERS, CHALLENGE AEROSOLS, *PROTECTION, COLLISION DISSEMINATORS, FIELD ACTIVITIES, M-101 TRAILERS(1/4-TON), XM-51 PROTECTIVE SHELTERS, REYNIER SAMPLER, TOXIC AGENT SIMULANTS, U/A REPORTS, XM-51 COLLECTIVE PROTECT (U)

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL: XM51 WAS PERFORMED IN ORDER TO DETERMINE THE DEGREE OF PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL AGENTS. TWO TRIALS WERE CONDUCTED IN LATE FEBRUARY 1968 AT DUGWAY PROVING GROUND (DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT AGENTS 'BACILLUS SUBTILIS' VAR. 'NIGER' (BG) AND 'SERRATIA MARCESCENS' (SM) WERE USED TO PRODUCE THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY MEANS OF ALL-GLASS IMPINGERS (AGI) AND REYNIERS SAMPLERS. THESE RECOVERIES WERE THEN COMPARED WITH THE SCHEDULE OF ACTIVITIES AND STATISTICALLY ANALYZED.

AD-P12 074 7/1 7/4
PENNSYLVANIA STATE UNIV UNIVERSITY PARK COLL OF SCIENCE

SYNTHESIS OF GASEOUS DISINFECTANTS. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 15 DEC 66-15 MAR 67.
MAR 67 7P DEMO,NORMAN C. I
CONTRACT: DA-18-064-AMC-187(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*LACTONES), (*ALKYLATION), (*BACTERIAL AEROSOLS), (*GERMICIDES), ETHYLENE OXIDE, CARBON DIOXIDE, TOXICITY, ACETATES, FORMATES, VAPOR PRESSURE, SYNTHESIS(CHEMISTRY), ELIMINATION REACTIONS, STABILITY, CYCLOPROPANES (U)
IDENTIFIERS: AZIRIDINE/N-ACYL, BUTYROLACTONE, PROPIOLACTONE/BETA, VINYL RADICALS (U)

THREE COMPOUNDS HAVE BEEN SUBMITTED FOR TESTING. THEY ARE: 3,4-EPOXY-2-METHYL- 2-BUTANOL; 3,4-EPOXY-1-BUTENE; AND, 1-ACETYLAZIRIDINE. TWO PROBLEMS HAVE HINDERED DEVELOPMENT OF MODIFICATION OF PROPIOLACTONE. MOST CRITICAL IS THE LOW VAPOR PRESSURE OF PROPIOLACTONE. IT IS FEARED THAT ADDITION OF ANY SIZABLE SUBSTITUENT WILL LOWER THE VAPOR PRESSURE SO MUCH THAT THE COMPOUND WOULD BECOME INEFFECTUAL FOR THAT REASON. SECONDLY, SUBSTITUTED PROPIOLACTONES ARE NOT EASY TO MAKE. (AUTHOR) (U)

AD-P27 016 13/2 7/4
ARMY BIOLOGICAL LABS FREDERICK MD

THE BIOLOGICAL SIGNIFICANCE OF THE MECHANISMS OF REACTION OF GASES AND CHEMICAL AGENTS SUSPENDED IN AIR IN INDUSTRIAL ATMOSPHERES. (U)

MAY 63 10P CAUER,H. I
REPT. NO. TRANS-790

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. FORTSCHRITTE DER BIOLOGISCHEN AEROSOL-FORSCHUNG-JAHREN 1957-1961, N.P., N.D., P275-282.

DESCRIPTORS: (*WASTES(INDUSTRIAL), AIR POLLUTION), (*AEROSOLS, *AIR POLLUTION), WASTES(INDUSTRIAL), AEROBIOLOGY, CHEMICAL ANALYSIS, OZONE, SMOKE, NITROGEN OXIDES, OXIDATION REDUCTION REACTIONS, PH FACTOR, INDUSTRIAL PLANTS, CONTAMINATION (U)
IDENTIFIERS: GERMANY(EAST AND WEST), QUALITATIVE ANALYSIS, SMOG, TRANSLATIONS (U)

THIS REPORT CONTAINS A QUALITATIVE ANALYSIS OF AEROSOLS CONTAINED IN INDUSTRIAL ATMOSPHERES. (U)

AD-844 900 4/13 15/2
AEROJET-GENERAL CORP EL MONTE CALIF SPACE DIV

THE ASSAY OF SAMPLES OBTAINED FROM BIOLOGICAL AEROSOLS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 7 APR 66-30 OCT 69. DEC 69 256P DODDS,G. E. IKISPERSKY,J. P. HATTICE,J. A. HELLS,J. R. HITZ,S. I

REPT. NO. AGC-9037-FR
CONTRACT: DA-42-007-AMC-328(R)
PROJ: DA-1-X-665709-D-639
TASK: 1-X-665709-D-63906

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORFIGN WITHOUT APPROVAL OF DESERET TEST CENTER, ATTN: PROCUREMENT DIV, SALT LAKE CITY, UTAH 84104.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, *AEROSOLS), (*BACTERIAL AEROSOLS, ANALYSIS), VIRUSES, RICKETTSIACEAE, LABELED SUBSTANCES, ISOTOPES, ANTIGENS + ANTIBODIES, TISSUE CULTURE, CULTURE MEDIA, FLUORESCENT ANTIBODY TECHNIQUES, ENZYMES, METABOLISM, VIABILITY, COXIELLA BURNETII, CHLAMYDIA (U)
IDENTIFIERS: ASSAYING, *BIOLOGICAL AEROSOLS (U)

THIS REPORT DESCRIBES THE LABORATORY INVESTIGATIONS CONDUCTED UNDER A PROGRAM TO EVALUATE NEWER TECHNIQUES FOR THE ASSAY OF CAPTURED BIOLOGICAL AEROSOL SAMPLES. THOSE SELECTED FOR INVESTIGATION WERE TO BE EVALUATED FOR SENSITIVITY, SELECTIVITY, LOGISTIC SIMPLICITY, ECONOMY, RAPIDITY, COMPATIBILITY WITH THE CONTENTS OF STANDARD SAMPLERS, AND CAPABILITY FOR ULTIMATE AUTOMATION. FIVE BASIC ASSAY CONCEPTS WERE EVALUATED, INCLUDING (1) SENSITIZED SURFACES AS SUBSTRATES TO IMMOBILIZE AGENT FOR FLUORESCENT ANTIBODY QUANTITATION, (2) ENZYMATIC ASSAY TECHNIQUES TO QUANTITATE RICKETTSIAE, (3) IMMUNOADSORPTION OF AGENT ANTIGEN TO SENSITIZED LATEX PARTICLES WITH READOUT BY PARTICLE SIZE DISTRIBUTION ANALYSIS, (4) QUANTITATION OF PROGENY AGENT BY IMMUNOFLUORESCENCE, AND (5) USE OF RADIOISOTOPE-LABELED ANTIBODY FRACTIONS TO QUANTITATE EITHER SPECIFIC ANTIGEN OR PROGENY AGENT IN SUITABLE CELL CULTURES. FROM THE FIVE BASIC CONCEPTS, NINE CANDIDATE TECHNIQUES WERE DESIGNED AND EVALUATED IN LABORATORY TESTS. THREE METHODS (THE PASSIVE IMMUNOLOGICAL AGGREGATION, PASSIVE RADIOMETRY AND RADIOLABEL CELLULAR METHODS) WERE FOUND TO BE SUFFICIENTLY PROMISING. (U)

AD-817 975L 15/2
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y

SEMI-SPECIFIC DETECTION OF VIRAL NUCLEIC ACIDS BY THE FLUORESCENT ENZYME STAINING TECHNIQUE: THE FLUORESCENT DYE SITS AS A DETECTOR OF TISSUE CULTURE CELLS. (U)

DESCRIPTIVE NOTE: PROGRESS REPT. NO. 2, MAY 67 19P - BENJAMINSON,MORRIS A. IKATZ, IRWIN J. ITURNER,MATTHEW K. I
PROJ: ZF-011-01-01, NASL-1ED-19

UNCLASSIFIED REPORT
DISTRIBUTION: DDC ONLY: OTHERS TO NAVAL APPLIED SCIENCE LAB., BROOKLYN, N. Y. 11250.

DESCRIPTORS: (*TOXIC AGENT ALARMS, *VIRUSES), (*BACTERIAL AEROSOLS, DETECTION), DYES, LABELED SUBSTANCES, BLOOD, FLUORESCENCE, ENZYMES, ANTIGENS + ANTIBODIES, CYTOCHEMISTRY, BIOLOGICAL STAINS, TISSUE CULTURE CELLS, MEMBRANES(BIOLOGY), AIRBORNE, PARTICLES, NUCLEIC ACIDS (U)
IDENTIFIERS: FEST(FLUORESCENT ENZYME STAINING TECHNIQUE), FLUOROCHROME (U)

THIS REPORT DEALS WITH FURTHER INVESTIGATIONS INTO THE VALUE OF THE FLUORESCENT COMPOUND, 4-ACETAMIDO, 4'ISOTHIOCYANOSTILBENE-2,2'-DISULPHONIC ACID (SITS) AS A DETECTOR OF TISSUE CULTURE CELLS AND CELL FRAGMENTS. THE POSSIBLE CARRIER OF VIRUS PARTICLES DISSEMINATED IN THE MARINE ATMOSPHERE. EXPERIMENTS HAVE BEEN CONDUCTED FOR THE PURPOSE OF ELUCIDATING THE BIOLOGICAL PROPERTIES OF THIS DYE WITH A VIEW TOWARD ITS EMPLOYMENT AS A MODULE OF THE TEST SYSTEM. THE DATA SHOW THAT IN THE CONCENTRATIONS USED, SITS IS NON-TOXIC FOR TISSUE CULTURE CELLS, STAINING BOTH LIVING AND DEAD CELLS AS WELL AS CELL FRAGMENTS. WORK ON THE AFFINITY OF SITS FOR SPECIFIC SUBCELLULAR MACROMOLECULAR CONSTITUENTS, ITS ACTION ON VIRUS INFECTED CELLS, THE POSSIBLE USE OF SITS AS A FLUOROCHROME, AND ITS PHYSICO-CHEMICAL PROPERTIES, INCLUDING SPECTRAL CHARACTERISTICS OF THE DYE, ITSELF, IS IN PROGRESS. (AUTHOR) (U)

AD-832 214 6/13
BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED TECHNOLOGY OPERATIONS

A STUDY OF AEROSOL PARTICLE FRACTIONATION BY CONTINUOUS PARTICLE ELECTROPHORESIS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 28 FEB 66-28 FEB 68.
FEB 68 90P HUEBNER,VICTOR R. ;
REPT. NO. FR-2429-101
CONTRACT: DA-18-069-AMC-496(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES SECTION, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, ELECTROPHORESIS), SEPARATION, PARTICLES, INSTRUMENTATION, OPTICAL SCANNING, BUFFERS, MICROORGANISMS, MOBILITY, FEASIBILITY STUDIES, STERILIZATION (U)

THE STUDY PROGRAM WAS CONDUCTED TO DETERMINE THE FEASIBILITY OF SEPARATING DIFFERENT TYPES OF BACTERIA FROM EACH OTHER AND FROM NATURALLY OCCURRING AEROSOL PARTICLES BY MEANS OF ELECTROPHORESIS. TWO BASIC AREAS WERE STUDIED: DESIGN IMPROVEMENT OF A CONTINUOUS PARTICLE ELECTROPHORESIS INSTRUMENT AND DEVELOPMENT OF METHODS USING THE CPE INSTRUMENT FOR ALTERING ELECTROPHORETIC MOBILITY OF VARIOUS BACTERIA AND NONBACTERIAL PARTICLES. THE INSTRUMENT WHICH RESULTED FROM THE PROGRAM IS HIGHLY RELIABLE, EASY TO OPERATE AND PROVIDES A HIGH DEGREE OF RESOLUTION WITH A RESPONSE TIME OF LESS THAN TWO MINUTES. ALSO, A SIMPLE OPTICAL SCANNER BREADBOARD WAS USED. THE SCANNER IS CAPABLE OF RECORDING THE ELECTROPHORETIC MIGRATION DISTANCE AND THE RELATIVE INTENSITIES OF THE VARIOUS TYPES OF BACTERIAL OR NONBACTERIAL PARTICLES WITHIN A MIXTURE. DIFFERENT BUFFERS WERE TESTED WITH THE CPE INSTRUMENT TO DETERMINE OPTIMUM OPERATING CONDITIONS: MODIFIED MICHAELIS BUFFER WAS THE PRIMARY ELECTROLYTE USED. TESTING REVEALED MAJOR SHIFTS IN ELECTROPHORETIC MOBILITIES OF DIFFERENT TYPES OF PARTICLES. ALSO, THE ADDITION OF OPTIMUM CONCENTRATIONS OF LOW MOBILITY PROTEINS PERMITTED COMPLETE SEPARATION OF INORGANIC PARTICLES AND ALL BACTERIA TESTED. (AUTHOR) (U)

AD-845 189 6/13 19/2
IIT RESEARCH INST CHICAGO ILL

EFFECT OF NITROGEN DIOXIDE ON AEROSOLS OF S. MARCESCENS, FLAVOBACTERIUM, AND B. SUBTILIS VAR. NIGER. (U)

DESCRIPTIVE NOTE: TEST REPTS. 5 AUG-1 OCT 69, JAN 70 99P MILLER,SOL EHRLICH ,RICHARD ;
REPT. NO. IITRI-L6032-TR-38, IITRI-L6032-TR-39
CONTRACT: DA-18-069-AMC-499(A)
PROJ: IITRI-L6032

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.
SUPPLEMENTARY NOTE: ALSO INCLUDES REPT. NO. IITRI-L6032-TR-40.

DESCRIPTORS: (*AIR POLLUTION, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, *NITROGEN OXIDES), SERRATIA MARCESCENS, BACILLUS SUBTILIS, EUBACTERIALES, DECONTAMINATION, EFFECTIVENESS (U)
IDENTIFIERS: FLAVOBACTERIUM, NITROGEN OXIDE(NO2) (U)

STUDIES WERE CONDUCTED TO DETERMINE THE EFFECT OF NITROGEN DIOXIDE (NO2) ON AEROSOL CHARACTERISTICS OF SERRATIA MARCESCENS, A FLAVOBACTERIUM SP., AND SPORES OF BACILLUS SUBTILIS VAR. NIGER. THE NO2 CONCENTRATIONS USED IN THE EXPERIMENTS WERE 0.5, 5, AND 10 PPM. THE AEROSOL PARAMETERS OF INTEREST WERE THE ESTIMATES OF BIOLOGICAL DECAY RATE AND AEROSOL SOURCE STRENGTH. THE RESULTS OF THE STUDY SUGGESTED THAT THE BIOLOGICAL DECAY RATE OF ALL THREE AGENTS TENDED TO BE HIGHER AT 10 PPM OF NO2 THAN AT THE LOWER CONCENTRATIONS OR IN THE CONTROL ATMOSPHERE WITHOUT NO2 ADDED. HOWEVER, THE SIGNIFICANCE OF THIS DIFFERENCE COULD BE CONFIRMED ONLY FOR AIRBORNE FL. THE ESTIMATES OF AEROSOL SOURCE STRENGTH OF THE THREE AGENTS DID NOT APPEAR TO BE SIGNIFICANTLY ALTERED BY THE NO2. (AUTHOR) (U)

AD-710 068 6/1 7/9
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

BERYLLIUM ANALYSIS BY GAS CHROMATOGRAPHY. (U)

DEC 69 10P TAYLOR,MICHAEL L. (ARNOLD, EUGENE L.)
REPT. NO. AMRL-TR-69-130-PAPER-24
PROJ: AF-6302

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE ANNUAL CONFERENCE ON ATMOSPHERIC CONTAMINATION IN CONFINED SPACES (5TH); P363-371, 16-18 SEP 69.

DESCRIPTORS: (*BERYLLIUM, *GAS CHROMATOGRAPHY); (*METAL POISONING, GAS CHROMATOGRAPHY); BLOOD, IN VITRO ANALYSIS, MICROANALYSIS (U)

THE SEARCH FOR A NEW, ULTRASENSITIVE TECHNIQUE FOR DETECTING AND QUANTITATING BERYLLIUM IN BIOLOGICAL MATERIALS RESULTED IN THE DEVELOPMENT OF A GAS CHROMATOGRAPHIC METHOD OF ANALYSIS. IN A RECENT PUBLICATION THE AUTHORS REPORTED IN VITRO STUDIES IN WHICH THE GAS CHROMATOGRAPHIC TECHNIQUE WAS USED TO DETECT AND QUANTITATE AS LITTLE AS 0.295 MICROGRAMS OF BERYLLIUM IN A 0.05 ML SAMPLE. REPORTED HERE IS THE FIRST SUCCESSFUL APPLICATION OF THE GAS CHROMATOGRAPHIC METHOD TO THE ANALYSIS OF BLOOD AND TISSUES OBTAINED FROM RATS ADMINISTERED INTRAVENOUS BERYLLIUM SULFATE. (AUTHOR) (U)

AD-780 484 21/2 7/4
UNITED AIRCRAFT RESEARCH LABS EAST HARTFORD CONN

CHEMISTRY OF POLLUTANT FORMATION IN FLAMES. (U)

73 31P . PALMER,HOWARD B. (SEERY, DANIEL J.)
CONTRACT: F44620-69-C-0100
PROJ: AF-9750
TASK: 975001
MONITOR: AFOSR TR-74-0887

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ANNUAL REVIEWS ON PHYSICAL CHEMISTRY, V24 P235-262 1973.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH PENNSYLVANIA STATE UNIV., UNIVERSITY PARK. DEPT. OF MATERIAL SCIENCES.

DESCRIPTORS: *COMBUSTION PRODUCTS, *AIR POLLUTION, SMOKE, REVIEWS, HYDROCARBONS, NITROGEN OXIDES, REACTION KINETICS, SULFUR OXIDES, CARBON MONOXIDE (U)
IDENTIFIERS: CHEMICAL REACTION MECHANISMS, SOOT (U)

A REVIEW IS PRESENTED OF THE RECENT LITERATURE RELATED TO THE CHEMISTRY OF AIR POLLUTION FROM COMBUSTION SYSTEMS. EMPHASIS IS ON OXIDES OF NITROGEN, OXIDES OF SULFUR, CARBON MONOXIDE, UNBURNED HYDROCARBONS AND SOOT. (209 REFERENCES). (AUTHOR) (U)

Sorption Properties of Activated Carbon, F. J. Reucroft, Univ. of Kentucky, Lexington, Kentucky, W. H. Simpson, The Franklin Institute Research Laboratories, Philadelphia, Pa., L. A. Jonas, Research Labs., Edgewood Arsenal, Maryland, Reprinted from Journal of Physical Chemistry, Vol. 75, p. 3526, 1971

The Kinetics of Adsorption of Carbon Tetrachloride and Chloroform from Air Mixtures by Activated Carbon, Leonard A. Jonas, Res. Labs., Edgewood Arsenal, Maryland, W. J. Svirbely, University of Md., College Park, Maryland, Reprinted from Journal of Catalysis, Vol. 24, No. 3, Mar 1972

Predictive Equations in Gas Adsorption Kinetics, L. A. Jones, J. A. Rehrmann, Chemical Lab., Edgewood Arsenal, Maryland, Reprinted from Carbon, Vol. 11, pp. 59-64, Pergamon Press, Printed in Great Britain, 1973

Effect of Traces of Large Molecules Containing Nitrogen on Hydrogen Overvoltage, Walter Juda, Martin S. Frant, Prototech, Inc., Cambridge, Mass. and David N. Kramer, U. S. Army Chemical Res. and Dev. Labs., Edgewood Arsenal, Maryland, Reprinted from Science, Vol. 146, No. 3643, pp. 521-523, 23 Oct 1964

Ultra Sensitive, Specific Method for Cyanide Using p-Nitrobenzaldehyde and o-Dinitrobenzene, George G. Guilbault, David N. Kramer, Defensive Res. Dept., Res. Labs., U. S. Army Edgewood Arsenal, Maryland, Reprinted from Analytical Chemistry, Vol 38, p. 834, Jun 1966

Specific Detection and Determination of Cyanide Using Various Quinone Derivatives, George G. Guilbault, David N. Kramer, Defensive Res. Div., Chemical Res. & Dev. Labs., Edgewood Arsenal, Maryland, Reprinted from Analytical Chemistry, Vol. 37, p. 1395, Oct 1965

Enzymes in Industry, David N. Kramer, Renée Ford, Associate Editor, International Science and Technology, pp. 70-82, Apr 1967

Reaction of Carbon Monoxide with Impregnated Carbons, Eugene P. Meier, Susan Koenig Luckan, Edward J. Poziomek, Development and Engineering Directorate, Edgewood Arsenal, Maryland Reprinted from Carbon, Vol.11, No. 4-J, pp. 417-418, Pergamon Press, Printed in Great Britain, 1973

Analytical Uses of Charge-Transfer Complexation: Spectrophotometric Method for Iodide in Water, Edward J. Poziomek, David W. Reger, Physical Research Lab., Edgewood Arsenal, Maryland, Reprinted from Analytica Chimica Acta, 58, Printed in The Netherlands, 1972

Organic Reactions, Review of the Schoenemann Reaction in Analysis and Detection of Organophosphorus Compounds, Edward J. Poziomek Eleanor V. Crabtree, Edgewood Arsenal, Maryland, Reprint from Journal of the AOAC, Vol. 56, No. 1, 1973

Fixed and Fluidized Beds: An Introduction, Barry G. Pallay, Naval Surface Weapons Center(formerly Naval Ordnance Laboratory) White Oak, Silver Spring, Maryland, NOLTR 73-54, 4 Dec 1973

Detection and Estimation of Isopropyl Methylphosphonofluoridate and O-Ethyl S-Diisopropylaminoethylmethylphosphonothioate in Seawater in Parts-per-Trillion Level, Harry O. Michel, Eric C. Gordon, Joseph Epstein, Defense Res. Branch, Edgewood Arsenal, Aberdeen Proving Ground, Md., Reprinted from Environmental Science & Technology, Vol 7. p.1045, Nov 1973

Assay of Phenols and Arylamines Via Peroxidatic Coupling, David N. Kramer, Ethel B. Hackley, Physical Res. Lab., Edgewood Arsenal, Md., Reprinted from Analytical Letters, 4(4) pp. 223-230, 1971 (2 COPIES)

Rapid, Sensitive Kinetic Method for Detection and Determination of Phenolic Compounds, George G. Guilbault, David N. Kramer, Ethel Hackley, Research Labs, U. S. Army Edgewood Arsenal, Edgewood Arsenal, Md., Reprinted from Analytical Chemistry, Vol. 38, p. 1897, Dec 1966

Fluorometric Determination of Hyaluronidase and of Cu(II), Fe(II), and Cyanide Ion Inhibitors, George G. Guilbault, David N. Kramer, Ethel Hackley, Defensive Res. Dept., Res. Labs., Edgewood Arsenal, Maryland, Reprinted from Analytical Biochemistry, Vol. 18, No. 2, Feb 1967

Flurometric Assay of Methyl Ketones, David N. Kramer, Lucio U. Tolentino, Ethel B. Hackley, Physical Res. Lab., Res. Labs., Edgewood Arsenal, Md., Reprinted from Analytical Chemistry, Vol. 44, p. 2243, Nov 1972

1-Methyl-4-cyanoformylpyridinium Oximate. An Indicator of Environment in Solutions, Raymond A. Mackay, Edward J. Poziomek, Drexel Univ., Phila., Pa. and Physical Res. Lab., Edgewood Arsenal, Md., Reprinted from Journal of the American Chemical Society, Vol. 94, p. 6107, 1972

Use of Anisotropic Materials as Chemical Detectors, Thaddeus J. Novak, Edward J. Poziomek, Edgewood Arsenal, Physical Research Lab., Edgewood Arsenal, Md. and Raymond A. Mackay, Drexel University, Philadelphia, Pa., Reprint from Analytical Letters, 5(3), pp. 187-192, 1972

Microstructures and Area Contamination Profiles of Aitken Type Condensation Nuclei Clouds from Small Sources, Hugh T. Reilly, Donald O. Egner, U.S. Army Land Warfare Lab., Aberdeen Proving Ground, Maryland, Paper 4466 3-8

Catalytic Oxidation of SO_2 on Carbon Particles, T. Novakov, S. G. Chang, Lawrence Berkeley Lab., Univ. of Calif., Berkeley, Calif., Presented at the 76th National AICHE Meeting, 10-13 Mar 1974, Tulsa, Oklahoma, LBL-2693, Apr 1974

"X-Ray, an On-Line Program for Automatic Electron Microanalysis of Oxides and Silicates Using a SI-LI-Spectrometer," Gehrke, R. J., Davies, R. C., Aerojet Nuclear Company, Idaho Falls, Idaho, AEROJET-NC-113, March 1974.

"Neutron Activation Techniques for the Measurement of Trace Metals in Environmental Samples," Robertson, D. E., Carpenter, R., Pacific Northwest Laboratories, Richland, Washington, NAS-NS-3114, Washington University, Seattle, January 1974.

"Nuclear and X-Ray Techniques," W. S. Lyon, Oak Ridge National Laboratory, presented to the "Interagency Conference on the Environment" at Lawrence Livermore Laboratory, Livermore, California, 19 October 1972.

"Organic Reactions (Detection of Organophosphorus Compounds)," E. Poziomek and E. Crabtree, in Journal of the Association of Official Analytical Chemists, Vol. 56, January 1973.

"The Kinetics of Absorption of Organo-Phosphorus Vapors from Air Mixtures by Activated Carbons," L. Jonas and J. Rehrmann, in Carbon, Vol. 10, pp. 657-663, 1972.

"Effects of Artificial Aerosols; Methods of Synthesis and Analysis of Submicron Aerosols," Goetz, A. and Kallai, T., Army Biological Laboratory, Fort Detrick, Maryland, Translation 789, May 1963.

Synopsis: This short report concerns aerosols, hydrocarbons and quantitative analysis of air pollution.

"2nd - 6th Annual Progress Report: Status of Chemical Research in Atmosphere Purification and Control on Nuclear Powered Submarines," Naval Research Laboratory, 5814, 6053, 6251, 6491, 6722, August 1962, December 1963, March 1965, January 1967, June 1968.

CONTROL

Filters

AD-896 319L 15/2 13/13
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL: XM51. (U)

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 95P MARTIN,DONALD F. (MARABLE, LARRY C.)
REPT. NO. DPG-DR-8823
PROJ: RDT/E-1-R-693606-D-017, USATECOM-5-6-6242-11
TASK: 1-R-693606-D-01709

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDC-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SHELTERS), (*BIOLOGICAL WARFARE AGENTS, SAFETY DEVICES), (*BACTERIAL AEROSOLS, RECOVERY), (*BACILLUS SUBTILIS), (*SERRATIA MARCESCENS), SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION, COUNTERMEASURES, SAMPLING, CONCENTRATION(CHEMISTRY), INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY, DECONTAMINATION (U)
IDENTIFIERS: AEROSOL RECOVERY, AGI(ALL GLASS IMPINGERS), AIRLOCK STRUCTURES, ALL GLASS IMPINGERS, BG AGENTS, B-823 BIOLOGICAL CHALLENGERS, CHALLENGE AEROSOLS, *PROTECTION, COLLISION DISSEMINATORS, FIELD ACTIVITIES, M-101 TRAILERS(3/4-TON), [illegible] PROTECTIVE SHELTERS, REYNIER SAMPLER, TOXIC AGENT SIMULANTS, U/A REPORTS, XM-51 COLLECTIVE PROTECT (U)

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL: XM51 WAS PERFORMED IN ORDER TO DETERMINE THE DEGREE OF PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL AGENTS. TWO TRIALS WERE CONDUCTED IN LATE FEBRUARY 1968 AT DUGWAY PROVING GROUND (DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT AGENTS 'BACILLUS SUBTILIS' VAR. 'NIGER' (BG) AND 'SERRATIA MARCESCENS' (SM) WERE USED TO PRODUCE THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY MEANS OF ALL-GLASS IMPINGERS (AGI) AND REYNIERS SAMPLERS. THESE RECOVERIES WERE THEN COMPARED WITH THE SCHEDULE OF ACTIVITIES AND STATISTICALLY ANALYZED.

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM AERIAL LINE SOURCES. (U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FRESE,JAMES E.
REPT. NO. DPG-DR-8502-8
PROJ: RDT/E-1-R-025001-A-128, USATECOM-5-5-9966-22

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDC-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DISTRIBUTION), (*BACTERIAL AEROSOLS), (*AEROSOL GENERATORS), AIRBORNE, DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE, TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING, UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE, AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION, ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS (U)
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT PIGMENT PARTICLES, FLUORESCENT PARTICLES, FP(FLUORESCENT PIGMENT), FP DISSEMINATORS MODEL D, GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE FILTERS, ROTOROD SAMPLERS, SKIL BLOWERS, U/A REPORTS, U-6 AIRCRAFT, U-8D AIRCRAFT, U-6A AIRCRAFT, U-8 AIRCRAFT, VERTICAL GRIDS, WINDSOC SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND SPECIFIED RELEASE HEIGHTS (A502, PHASE A), THE SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS AND RELEASE HEIGHTS (A502, PHASE B). UPON COMPLETION OF FOURTEEN TRIALS UNDER PHASE B, THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL DESTRUCTION OF NONREPLACEABLE TEST APPARATUS PREMATURELY TERMINATED TESTING. THE SUCCESSFUL TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE RELEASES OF FLUORESCENT PIGMENT (FP) PARTICLES. SAMPLING WAS PERFORMED AT GROUND LEVEL TO A DISTANCE OF 29.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-707 709 18/8 4/2
NAVAL RESEARCH LAB WASHINGTON D C

THE FILTRATION OF PARTICLES OF ATOMIC DIMENSIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 70 25P SAUNDERS,A. W , JR.;
PATTERSON,R. L. , JR.;LOCKHART,L. B. , JR;

REPT. NO. NRL-7097
PROJ: RR001-05-42, NRL-C06-06
TASK: 9851

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIOACTIVE WASTES, *FLUID FILTERS), (*RADON, *ATMOSPHERIC MOTION), (*AIR POLLUTION, ATMOSPHERIC MOTION), FALLOUT, AEROSOLS (U)
IDENTIFIERS: FILTRATION (U)

PARTICLES OF ATOMIC DIMENSIONS, AS TYPIFIED BY THE PRIMARY DECAY PRODUCTS OF RADON, ARE READILY REMOVED FROM AN AIR STREAM BY PASSAGE THROUGH COARSE FIBROUS FILTERS OR EVEN THROUGH SCREENS, WHILE THE RADON PARENT IS UNAFFECTED. THE INVERSE RELATIONSHIP BETWEEN THE EFFICIENCY OF REMOVAL AND THE AIR VELOCITY INDICATES THAT DIFFUSION IS THE MECHANISM PRIMARILY RESPONSIBLE FOR DEPOSITION OF THESE SMALL PARTICLES. HOWEVER, IF THE PARTICLES BECOME ATTACHED TO AEROSOLS, THEIR COLLECTION IS GOVERNED BY AEROSOL BEHAVIORS WHERE COLLECTION DEPENDS BOTH ON FILTER CHARACTERISTICS AND AIR VELOCITY. THESE PARTICLES ARE READILY COLLECTED ON AEROSOL PARTICLES AND PROVIDE A RADIOACTIVE TAG BY WHICH AEROSOL OR FILTER BEHAVIOR MAY BE STUDIED. SUCH MEASUREMENTS CAN BE EXTENDED TO SIZE RANGES AND CONCENTRATION LEVELS BELOW THOSE CONVENIENT FOR OTHER TECHNIQUES. (AUTHOR) (U)

AD-692 688 6/13 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

AIR SAMPLING FOR RESPIRATORY DISEASE AGENTS IN ARMY RECRUITS. (U)

66 3P ARTENSTEIN,MALCOLM S. ;
MILLER,WILLIAM S. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS V30 N3 P871-2 SEP 1966.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARMY BIOLOGICAL CENTER, FREDERICK, MD.

DESCRIPTORS: (*RESPIRATORY DISEASES, ADENOVIRUSES), (*ARMY PERSONNEL, RESPIRATORY DISEASES), (*ADENOVIRUSES, AEROSOLS), BACTERIAL AEROSOLS, EPIDEMIOLOGY, AIR, SAMPLERS, VIABILITY, NEISSERIA MENINGITIDIS, ACUTE RESPIRATORY DISEASE VIRUS, PARTICLE SIZE, MILITARY MEDICINE (U)
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES (U)

THE REPORT INDICATES THAT THE LARGE VOLUME AIR SAMPLER CAN PROVIDE BACTERIAL AND VIRAL ISOLATIONS FROM AIR COLLECTED IN FIELD SITUATIONS. MENINGOCOCCI WERE FOUND IN A CONCENTRATION OF ONE VIABLE PARTICLE PER 100 CU FT OF AIR, WHEREAS WITH ADENOVIRUSES ONE TISSUE CULTURE INFECTIVE DOSE WAS FOUND IN 300 TO 3,000 CU FT OF AIR. ALTHOUGH THE RESULTS PRESENTED ABOVE CAN ONLY BE CONSIDERED AS PRELIMINARY DATA, THEY DO INDICATE THE NEED FOR SAMPLING LARGE VOLUMES OF AIR IN STUDIES OF NATURALLY PRODUCED AEROSOLS. IT IS READILY APPARENT THAT AN ALL GLASS IMPINGER, OPERATING AT 12.5 LITERS PER MIN, IS INADEQUATE FOR COLLECTING SUCH LOW CONCENTRATIONS. THESE RESULTS MAY EXPLAIN OUR FAILURE IN THE PAST TO DETECT INFECTIVE PARTICLES IN EPIDEMIOLOGICAL SAMPLING WITH AN ALL GLASS IMPINGER. THE EXPERIMENTS SHOW THAT (1) ONE MUST DEMONSTRATE THE PRESENCE OF AIRBORNE VIABLE INFECTIVE ORGANISMS; (2) ONE MUST MEASURE CONCENTRATIONS AND PARTICLE SIZES; (3) ONE MUST DEMONSTRATE EXPERIMENTALLY THAT CONCENTRATIONS AND PARTICLES OF THIS SORT CAN CAUSE INFECTION; AND (4) ONE OUGHT TO SHOW DIRECTLY WHERE THE PARTICLES HAVE COME FROM. THE PRESENT EXPERIMENTS SHOW THAT THE LVS CAN RECOVER AIRBORNE, VIABLE ORGANISMS AT VERY LOW CONCENTRATIONS IN NATURAL AEROSOLS. THESE STUDIES HAVE NOT DEMONSTRATED INFECTIVITY FOR MAN OF THE ORGANISMS COLLECTED, NOR HAVE THEY PROVED THE SOURCE OF THE ORGANISMS. (AUTHOR) (U)

AD-904 994L 6/17 7/4
EDGEWOOD ARSENAL MD

A REVIEW AND PERSPECTIVES ON THE DETERMINATION OF RESIDUAL LIFE OF SORBENTS AND FILTERS. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION OCT 71-FEB 72.
DEC 72 68P BAKER,JAMES A. ;POZIOMEK, EDWARD J. ;
REPT. NO. EA-SP-1300-1
PROJ: DA-1-W-662710-A-095
TASK: 1-W-662710-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; FOREIGN INFO.; DEC 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*ADSORPTION, STATE-OF-THE-ART REVIEWS), (*FLUID FILTERS, *BIBLIOGRAPHIES), (*GAS FILTERS, LIFE EXPECTANCY), (*PROTECTIVE MASK FILTERS, LIFE EXPECTANCY), (*NONDESTRUCTIVE TESTING, PROTECTIVE MASK FILTERS), AIR POLLUTION, CHEMICAL WARFARE AGENTS, CARBON, CHARCOAL, RESPIRATORS, HALOGENATED HYDROCARBONS, CARBON DIOXIDE, FLUOROHYDROCARBONS, GAS ANALYSIS, BUTANES, CHEMISORPTION (U)
IDENTIFIERS: SORPTION, WHETLERITE (U)

THE PURPOSE OF THIS PUBLICATION IS TO PROVIDE A REVIEW AND PERSPECTIVES ON THE DETERMINATION OF RESIDUAL LIFE OF SORBENTS AND FILTERS. CURRENT DESTRUCTIVE TESTING PROCEDURES, PROPOSED METHODS FOR NONDESTRUCTIVE PROCEDURES, AND NEW CONCEPTS RELATING TO NONDESTRUCTIVE TESTING ARE SURVEYED. REPORTS AND ARTICLES ON ALL TYPES OF FILTERS AND ADSORBENTS WERE CONSIDERED IN ORDER TO MAKE THE REVIEW AS COMPREHENSIVE AS POSSIBLE. THE SEARCH FOR INFORMATION INCLUDED GOVERNMENT PUBLICATIONS, CONTRACT REPORTS, A DDC BIBLIOGRAPHY, CHEMICAL ABSTRACTS, AND CITATION INDEX. (AUTHOR) (U)

AD-905 916 13/11 13/2 16/2 6/18
DEFENCE RESEARCH ESTABLISHMENT OTTAWA (ONTARIO)

ESTIMATION FOR THE RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS. (U)

SEP 72 39P WHEAT,JAMES A. ;HYDE,J. COLIN ;
REPT. NO. DREO-R-663

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*GAS FILTERS, CHARCOAL), (*AIR POLLUTION, GAS FILTERS), ADSORPTION, AIR FILTERS, PROTECTIVE MASK CANISTERS, FLUOROHYDROCARBONS, LIFE EXPECTANCY, GAS FLOW, AIR CONDITIONING EQUIPMENT, CHEMICAL WARFARE AGENTS, NUCLEAR PARTICLES, NONDESTRUCTIVE TESTING, SEALS, LEAKAGE(FLUID), TEST METHODS, HUMIDITY, EFFICIENCY, LEAK DETECTORS, RADIOACTIVE CONTAMINATION, CHEMICAL CONTAMINATION, CANADA (U)
IDENTIFIERS: ACTIVATED CARBON, PROTECTION, FREON 113 (U)

A METHOD HAS BEEN DEVELOPED FOR ESTIMATING THE RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS. SINCE THE METHOD IS NON-DESTRUCTIVE AND USES A LOW CONCENTRATION OF A NON-TOXIC TEST GAS, IT CAN BE APPLIED TO INSTALLED COLLECTIVE PROTECTORS. IT CAN ALSO BE USED AS A NON-DESTRUCTIVE LABORATORY TEST METHOD FOR PROTECTIVE MASK CANISTERS OR OTHER SMALL CHARCOAL FILTERS. IN LABORATORY EXPERIMENTS, BEDS OF CHARCOAL WERE CHALLENGED WITH FREON-113 AND THE TIME REQUIRED FOR THE EXIT CONCENTRATION TO REACH 0.005% OF THE INLET CONCENTRATION WAS DETERMINED. IT WAS DEMONSTRATED THAT BREAK TIME WAS RELATED TO THE AMOUNT OF MATERIAL ADSORBED ON THE CHARCOAL AND ALSO TO THE LENGTH OF TIME IN SERVICE. BREAK TIME ALSO DEPENDED UPON FLOW RATE, INLET CONCENTRATION, TEMPERATURE RELATIVE HUMIDITY AND BED DEPTH. EQUATIONS WERE DEVELOPED TO RELATE THE BREAK TIME OF BEDS OF FRESH CHARCOAL WITH THESE FIVE VARIABLES. TO ESTIMATE THE RESIDUAL CAPACITY OF A FILTER, ITS MEASURED BREAK TIME WOULD BE COMPARED WITH THE BREAK TIME CALCULATED FOR A BED OF FRESH CHARCOAL. A GRAPHICAL METHOD OF CARRYING OUT THE CALCULATIONS IS GIVEN. (AUTHOR) (U)

AD-913 587L 6/11 7/4 11/5
UNIROYAL INC WAYNE N J RESEARCH CENTER

REGENERATIVE POLYMERIC AMINE FIBERS FOR CARBON DIOXIDE SORPTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 71 59P FUEST,R. W. BRICE,G. M.
;
CONTRACT: N00600-71-C-0699

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; OCT 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL SHIP ENGINEERING CENTER, ATTN: SEC-6115C, HYATTSVILLE, MD. 20782.

DESCRIPTORS: (*CLOSED ECOLOGICAL SYSTEMS, CARBON DIOXIDE), (*CARBON DIOXIDE, SORPTION), SUBMARINES, AMINES, FIBERS, POLYMERS, SUBSTRATES, PERFORMANCE(ENGINEERING), POROSITY, PERMEABILITY, ATMOSPHERES, AIR POLLUTION, ABSORPTION, REMOVAL, DACRON (U)
IDENTIFIERS: EPICHLOROHYDRIN, *SCRUBBERS (U)

REMOVAL OF CO2 FROM A 0.5% CO2 ATMOSPHERE BY POLYMERIC AMINE-CONTAINING FIBERS HAS BEEN INVESTIGATED. AN INITIAL SCREENING PROGRAM OF CANDIDATE POLYMERIC AMINES SHOWED THAT POLYETHYLENIMINE (PEI) WAS THE SORBENT OF CHOICE. DACRON 62 WAS SELECTED AS THE SUBSTRATE FIBER AND A METHOD WAS DEVELOPED WHEREBY DACRON 62 FIBERS WITH 25 TO 30% OF CHEMICALLY BOUND PEI WERE PREPARED. THESE FIBERS SHOWED AN EQUILIBRIUM CO2 CAPACITY OF ABOUT 9% OF THEIR OWN WEIGHT FROM A 0.5% CO2-AIR MIXTURE, AND ARE CAPABLE OF SORBING 2.7% BY WEIGHT OF CO2 IN 10 MINUTES AT ROOM TEMPERATURE FROM A 0.5% CO2-AIR MIXTURE AT A FLOW RATE OF 2000 ML/MIN THROUGH A 12.0 CM LONG BY 1.09 CM DIAMETER TEST BED OF CHOPPED FIBER. COMPLETE DESORPTION OF CO2 CAN BE ACCOMPLISHED BY 110 C STEAM WITHIN 75 SECONDS. HOT WATER REGENERATION IS LESS EFFICIENT. UNSATISFACTORY RESISTANCE TO ATMOSPHERIC OXIDATION AT REGENERATION TEMPERATURES WAS IMPROVED BY OVERDIPPING WITH EPICHLOROHYDRIN SO THAT EXTENDED EXPOSURE TO AIR AT ELEVATED TEMPERATURES WITHOUT SERIOUS LOSS OF CAPACITY COULD BE TOLERATED. REJUVENATION OF HEAT-AGED FIBER CAN BE ACCOMPLISHED WITH A MILD SODIUM BOROHYDRIDE TREATMENT. (AUTHOR) (U)

AD-690 720 13/11 18/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL AEROSOLS AND BACTERIAL AEROSOLS. (U)

MAY 68 11P HARSTAD,J. BRUCE (FILLER, MELVIN E.)

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL HYGIENE ASSOCIATION JNL., V30 P280-290 MAY-JUN 69.

DESCRIPTORS: (*AEROSOLS, GAS FILTERS), (*GAS FILTERS, PERFORMANCE(ENGINEERING)), MICROORGANISMS, AEROSOLS, VELOCITY, PARTICLE SIZE, HUMIDITY, VIRUSES, BACTERIA (U)
IDENTIFIERS: *BIOLOGICAL AEROSOLS, *FLUID FILTERS, *PAPER (U)

VELOCITY, AEROSOL PARTICLE SIZE, AEROSOL CHARGE, AND EXPOSURE TO HIGH HUMIDITY WERE FOUND TO AFFECT THE PERFORMANCE OF AIR FILTERS FOR MICROBIAL AEROSOLS. FILTERS WERE EVALUATED WITH SUBMICRON T1 BACTERIOPHAGE AEROSOLS HAVING A NUMBER MEDIAN DIAMETER (NMD) OF 0.12-MICRON AND WITH AEROSOLS OF BACILLUS SUBTILIS VAR NIGER SPORES WITH A NMD OF 1-MICRON. THE FILTERS INCLUDED ULTRA-HIGH-EFFICIENCY FILTER PAPERS AND DOP SCAN-TESTED FILTER UNITS FABRICATED FROM THESE FILTER PAPERS. (AUTHOR) (U)

AD-691 126L 15/2 20/9
CORNELL AERONAUTICAL LAB INC BUFFALO N Y

AEROSOL SAMPLING AND SIZE ANALYSIS IN THE 10 TO 250 MICRON REGION. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JUN 67-JUN 68,
SEP 68 102P SCHNEEBERGER,R. F. ;
SPRINGSTON,D. P. ;
REPT. NO. CAL-AG-2473-E-1
CONTRACT: DAAA15-67-C-0578
PROJ: DA-1-B-562602-A-089
TASK: 1-B-562602-A-08902

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 1 JUL 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-TIT, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AEROSOLS, SAMPLING), (*SAMPLERS, EFFICIENCY), PARTICLE TRAJECTORIES, PARTICLE SIZE, DISTRIBUTION, INSTRUMENTATION, LAMINAR FLOW, TURBULENCE, CALIBRATION, IMPACT, WIND TUNNEL MODELS, FEASIBILITY STUDIES, CHEMICAL WARFARE AGENTS, MODEL TESTS (U)
IDENTIFIERS: HEATED INLET TESTS (U)

THE PURPOSE OF THE RESEARCH DISCUSSED IN THIS REPORT WAS TWOFOLD: (1) TO DETERMINE THE SAMPLING EFFICIENCY OF A NUMBER OF AEROSOL SAMPLING DEVICES WITH EMPHASIS PLACED ON THE EDGEWOOD AK SAMPLING, AND (2) TO STUDY AND DETERMINE THE FEASIBILITY OF APPROACHES TO PARTICLE SIZE DISTRIBUTION INSTRUMENTATION. THE FIRST AREA WAS INVESTIGATED BY TESTING THE SAMPLING DEVICES IN CONTROLLED AEROSOL DISTRIBUTIONS IN LAMINAR AND TURBULENT FLOW USING MASS BALANCE AND OPTICAL TECHNIQUES. CALIBRATION CURVES FOR THE SAMPLERS ARE PRESENTED. IN THE SECOND AREA, PARTICLE SAMPLING DEVICES BASED ON IMPACTION PHENOMENA WERE SELECTED FOR AND SUBJECTED TO FEASIBILITY EXPERIMENTS. THE RESULTS OBTAINED SHOWED THAT THE APPROACH SELECTED OFFERS SIGNIFICANT PROMISE FOR PARTICLES IN THE RANGE OF 10 TO 250 MICRONS. (AUTHOR) (U)

AD-848 570 15/2 14/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-SAMPLING DEVICES. (U)

JAN 69 30P CURTIS,JOHN J. ;
REPT. NO. SMUFD-TN-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORFIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, AEROSOLS), (*AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS, ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE, FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA, EGGS (U)
IDENTIFIERS: EVALUATION, *PEEPIPORGUS ELECTRODE ELECTROSTATIC PRECIPITATOR) (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES. BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS, ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES. (AUTHOR) (U)

AD-673 306 4/13
ARMY BIOLOGICAL LABS FREDERICK MD

BACTERIAL SAMPLERS. (U)

JUL 68 16P RECHMENSKII,S. I
REPT. NO. TRANS-235

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF BOLSHAYA MEDITSINSKAYA ENTSIKLOPEDIYA (USSR) V3 P248-254 1957. BY ELDON E. EWING.

DESCRIPTORS: (*BACTERIAL AEROSOLS, SAMPLERS), MOLECULAR WEIGHT, PARTICLE SIZE, SEDIMENTATION, CENTRIFUGES, CULTURE MEDIA, LABORATORY EQUIPMENT, FLUID FILTERS, REVIEWS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PAPER IS COMPRISED OF A TRANSLATION OF A REVIEW ARTICLE FROM THE GREAT MEDICAL ENCYCLOPEDIA, 2ND ED., 1957. (U)

AD-680 923 4/13 16/2
ARMY BIOLOGICAL LABS FREDERICK MD

MICROBIOLOGICAL METHODS OF TESTING THE ATMOSPHERE. (U)

JUL 68 133P VERSHIGORA,A. YU. I
REPT. NO. TRANS-567

UNCLASSIFIED REPORT
PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI ORDERING INSTRUCTIONS.
SUPPLEMENTARY NOTE: TRANS. OF MONO. METODY MIKROBIOLOGICHNYKH DOSLIDZHEN PAVITRYA, KIEV, 1960 133P.

DESCRIPTORS: (*BACTERIAL AEROSOLS, COLLECTING METHODS), BACTERIA, AIRBORNE, MICROORGANISMS, INSTRUMENTATION, ADHESION, SEDIMENTATION, FLUID FILTERS, PURIFICATION, INFECTIONS, DESIGN, EFFECTIVENESS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE BOOK PRESENTS BRIEF INFORMATION ON BACTERIAL AEROSOLS AND METHODS OF CONDUCTING EXPERIMENTS WITH THEM. IT CONTAINS EXACT DESCRIPTIONS OF NEW INSTRUMENTS USED FOR BACTERIOLOGICAL TESTING OF THE ATMOSPHERE, METHODS OF USING THEM AND EVALUATING INSTRUMENTS THAT ARE WIDELY APPLIED IN PRACTICE. A SUCCINCT EXPOSITION IS GIVEN OF THE BASIC RULES EMPLOYED IN THE METHODOLOGY OF BACTERIOLOGICAL TESTING OF THE AIR IN CLOSED SPACES AS WELL AS OUTDOORS. (AUTHOR) (U)

AD-920 929L 4/4 13/2 16/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

A FEW PROBLEMS CONCERNING AIR DISINFECTION. (U)

JUL 73 9P | BARTLEMA,H. C. |
REPT. NO. FSTC-HT-23-1601-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM NEDERLANDS MILITAIR GENEESKUNDIG TIJDSCHRIFT V7 N5/6 1954.

DESCRIPTORS: (*GERMICIDES, AEROSOLS), (*DISINFECTION, AIR POLLUTION), DECONTAMINATION, BIOLOGICAL WARFARE AGENTS, MICROORGANISMS, TOXIC HAZARDS, FOOD, ANIMALS, DAMAGE ASSESSMENT, PATHOGENIC MICROORGANISMS, PHENOLS, HYPOCHLORITES, SODIUM COMPOUNDS, RESORCINOL, PROPYLENE GLYCOL, VAPORS, VAPORIZATION, GLYCOLS, SPRAYS, ULTRAVIOLET RADIATION, HISTORY, NETHERLANDS, TRANSLATIONS (U)
IDENTIFIERS: GLYCOL/TRIETHYLENE (U)

THE GOAL OF REDUCING THE NUMBER OF MICROORGANISMS PRESENT IN THE AIR OF AN ENCLOSED SPACE CAN TAKE TWO FORMS: (1) PREVENT THE SPREADING OF THESE GERMS IN THE AIR AND THUS DIRECT MEASURES AT THE DIFFERENT RESERVOIRS, PERSONS AS WELL AS OBJECTS ('FOMITES'); (2) REMOVE OR DESTROY GERMS ALREADY SUSPENDED IN THE AIR, IN WHICH CASE AIR DISINFECTING MEASURES COME TO THE FORE. A COMBINATION OF THESE TWO PRINCIPLES IS ALSO QUITE FEASIBLE AND UNDER MOST CIRCUMSTANCES MAY BE THE MOST EFFECTIVE. THESE ARE THE PRINCIPLES DISCUSSED IN THE REPORT. (U)

AD-907 279L 4/17 16/2
EDGEWOOD ARSENAL MD

SUMMARY OF PROTECTION PROVIDED BY MILITARY MASKS AGAINST VARIOUS MILITARY AND NONMILITARY AGENTS. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION.
JAN 73 21P ROBINSON,DAVID L
REPT. NO. EA-SP-1800-10

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JAN 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*PROTECTIVE MASKS, *AIR POLLUTION), (*PROTECTIVE MASK FILTERS, LIFE EXPECTANCY), CHEMICAL WARFARE AGENTS, WASTE GASES, ABSORPTION, AMMONIA, GASES, POISONOUS GASES, EXHAUST GASES, CHLORINE, PROTECTIVE MASK CANISTERS, PARTICLES, DUST, VAPORS, ORGANIC COMPOUNDS, OXYGEN EQUIPMENT, AIRBORNE, SKIN(ANATOMY), EYE, BREATHING APPARATUS, DISASTERS, CARBON MONOXIDE, ARTIFICIAL RESPIRATION, INGESTION(PHYSIOLOGY), RESPIRATORS, TABLES(DATA), MODEL TESTS, DOSAGE (U)
IDENTIFIERS: CIVIL DISTURBANCES, MOUTH TO MOUTH RESUSCITATION, M-11 PROTECTIVE MASK CANISTERS, M-17 PROTECTIVE MASKS, M-17A1 PROTECTIVE MASKS, M-9A1 PROTECTIVE MASKS, *M-9 PROTECTIVE MASKS, OPLAN GARDEN PLOT PROGRAM, SORPTION (U)

THE REPORT SHOWS SOME OF THE CAPABILITIES OF M9/M9A1 SPECIAL PURPOSE MASKS AND THE M17/M17A1 FIELD PROTECTIVE MASKS AND OTHER MILITARY BREATHING APPARATUS TO PROVIDE PROTECTION AGAINST TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES FOR USE IN OPLAN GARDEN PLOT AND PROVIDES A CHART LISTING ALL KNOWN TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES VERSUS THE RECOMMENDED MILITARY MASKS OR BREATHING APPARATUS CAPABLE OF PROTECTING AN INDIVIDUAL AGAINST THEM. (AUTHOR) (U)

AD-673 121 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY, PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY. (U)

MAY 68 40P HARSTAD,J. BRUCE (FILLER, HELVIN E.)
REPT. NO. SMUFD MISC PUB-29
PROJ: DA-1B622901A072

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS FILTERS, PERFORMANCE(ENGINEERING)), AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS SUBTILIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES, PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: *AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (I) ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (II) COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM THESE FILTER PAPERS, AND (III) HIGH-EFFICIENCY FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES RANGING FROM 1.1 TO 150 FEET PER MINUTE (FPM) WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS GENERATED BY THE WHITBY SONIC JET IONIZER. (AUTHOR) (U)

AD-911 269L 13/1 13/11
UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT

LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY PARTICULATE AIR FILTER BANKS. (U)

DEC 70 15P DEMONBRUN,J. R. (CHOAT, E. E.)
REPT. NO. Y-JA-33-REV-2
CONTRACT: W-7405-ENG-26
MONITOR: GIDEP 325.16.00.00-CN-01

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 JUN 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO OFFICER-IN-CHARGE (CODE 842), FLEET MISSILE SYSTEMS ANALYSIS AND EVALUATION GROUP ANNEX, ATTN: GIDEP ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-REV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING (7TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: (*GAS FILTERS, MAINTENANCE), (*AIR FILTERS, MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED ATMOSPHERES, LEAKAGE(FLUID), VISUAL INSPECTION, INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON, BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE. LIKEWISE, THESE SAME CONTAMINANTS, USED IN A CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE SOPHISTICATED REQUIREMENTS, CAREFUL SERVICING OF HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING, AND TESTING FILTER BANKS. THIS PAPER RELATES SOME OF THE PRACTICES AND PROCEDURES THAT HAVE BEEN (U)

AD-821 836 15/2 6/5
BIONETICS RESEARCH LABS INC FALLS CHURCH VA

INVESTIGATIONS ON IMMUNOLOGICAL AND IMMUNOCHEMICAL APPROACHES TO BIOLOGICAL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 1 JUL-30 SEP 67.
OCT 67 15P BOZICEVICH,JOHN J
CONTRACT: DAAA13-67-C-0207
PROJ: DA-1B622901A071

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORFIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *TOXIC AGENT ALARMS), (*IMMUNOLOGY, DETECTION), IMMUNE SERUMS, CLAY MINERALS, FLUORESCENT ANTIBODY TECHNIQUES, ANTIGENS + ANTIBODIES, ENZYMES, PAPAIN, SERRATIA MARCESCENS, PARTICLES, PARTICLE SIZE, BACILLUS SUBTILIS, AIRBORNE, STANDARDIZATION, PREPARATION, FLUID FILTERS (U)

DURING THE SUBJECT FIRST QUARTER OF THE CONTRACT PERIOD, ATTEMPTS WERE MADE TO INCREASE THE ACTIVITY OF ANTIBODY REAGENTS, TO PREPARE BENTONITE SUSPENSIONS OF KNOWN CATION COMPOSITION, AND TO DETERMINE THE FEASIBILITY OF USING GLASS CAPILLARY FILTERS IN THE FILTER FLUORESCENCE TEST. PAPAIN DIGESTION WAS EMPLOYED FOR ENZYMATIC FRAGMENTATION OF S. MARCESCENS ANTISERUM GLOBULIN. THE PROCEDURE EMPLOYED GAVE A PREPARATION WITH LESS ANTIBODY ACTIVITY PER MILLIGRAM OF PROTEIN THAN THE ORIGINAL ANTISERUM. THIS WAS PROBABLY DUE TO PROTEIN LOST THROUGH DENATURATION AND PRECIPITATION. ATTEMPTS TO PREPARE FIVE DIFFERENT CATION-SATURATED BENTONITES INDICATED THAT CATION COMPOSITION DOES HAVE AN EFFECT ON THE DEGREE OF SWELLING OF BENTONITE PARTICLES IN AQUEOUS MEDIA. (U)

166

AD-884 193 14/2
GENERAL DYNAMICS CORP SAN DIEGO CALIF CONVAIR AEROSPACE DIV

DEVELOPMENT OF HCL AND HF DETECTION SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUN 70-2 JUN 71, JUN 71 73P BARTLE,E. ROY IHECKSTROTH, EDGAR A. IKAYE,SAM I
CONTRACT: FD4611-70-C-0069
MONITOR: AFRPL TR-71-89

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS DETECTORS, *ACIDS), (*MONITORS, *EXHAUST GASES), (*AIR POLLUTION, GAS DETECTORS), HYDROGEN COMPOUNDS, CHLORIDES, FLUORIDES, GAS FILTERS, INFRARED SPECTROSCOPY, CONCENTRATION(CHEMISTRY), HYDROCHLORIC ACID, DESIGN (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, GAS FILTER CORRELATION SYSTEMS, *FLUORIDES, *HYDROGEN, *HYDROGEN CHLORIDE, ROC.ET EXHAUST (U)

THE GAS FILTER CORRELATION (GFC) TECHNIQUE FOR DETECTING HCL AND HF HAS BEEN DEMONSTRATED IN THE LABORATORY. THE BASIC IDEA OF THIS TECHNIQUE IS THAT A SAMPLE OF GAS CAN PROVIDE AN EFFICIENT SELECTIVE FILTER FOR ABSORBING INFRARED RADIATION EMITTED FROM A POLLUTED MIXTURE OF ATMOSPHERIC CONSTITUENTS. IN OPTICAL INSTRUMENT TERMS, SPECTRAL RESOLUTIONS OF BETTER THAN 0.1/CM MAY BE ACHIEVED. THUS, A HIGH SPECIFICITY IS ATTAINED FOR THE DETECTION OF A PARTICULAR POLLUTANT. A LABORATORY GFC INSTRUMENT HAS BEEN DEVELOPED AND APPLIED TO DETECT HCL AND HF OVER A CONCENTRATION RANGE OF 0.1 TO 2500 PPM AND DEMONSTRATED TO BE INSENSITIVE TO OTHER POSSIBLE INTERFERING PROPELLANT VAPORS. THE TEST PROCEDURES FOR CONDUCTING THE EXPERIMENTS ARE DESCRIBED. SERIOUS PROBLEMS WERE ENCOUNTERED IN THE SAMPLE CELL OF THE INSTRUMENT NAMELY, WALL ABSORPTION AND CHEMICAL REACTION EFFECTS. THESE PROBLEMS WILL ARISE IN ANY TYPE OF INSTRUMENT THAT USES A SAMPLE CELL OR SAMPLING SYSTEM. RECOMMENDATIONS ARE MADE AS TO HOW THESE PROBLEMS MAY BE ELIMINATED IN A PROPERLY DESIGNED GFC FIELD INSTRUMENT THAT DOES NOT REQUIRE A SAMPLE CELL OR SAMPLING SYSTEM. (AUTHOR) (U)

AD-689 102 6/5
NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION OF MICROBIAL CONCENTRATION IN AIR OF DENTAL OPERATING ROOMS BY HEPA FILTRATION. (U)

JAN 69 13P PELLEU,G. B. , JR.;SHREVE, W. B. ;MACHTFL,L. W. ;
REPT. NO. NDS-TR-004
PROJ: MR.005.19-4061

UNCLASSIFIED REPORT

DESCRIPTORS: (*DENTISTRY, *BACTERIAL AEROSOLS), AIRBORNE, MICROORGANISMS, INFECTIONS, SAMPLERS, GAS FILTERS, MEASUREMENT (U)
IDENTIFIERS: FILTRATION, HEPA FILTERS (U)

MICROBIAL AEROSOLS ARE KNOWN TO BE CREATED AND DISSEMINATED IN DENTAL OPERATING ROOMS (DOR'S) IN QUANTITIES SUFFICIENT TO RAISE THE POSSIBILITY OF CROSS INFECTION. THE PURPOSE OF THIS STUDY WAS TO EVALUATE THE EFFECTIVENESS OF HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTERS IN REDUCING THE CONCENTRATION OF AIR-BORNE MICROORGANISMS. TEST WERE MADE IN DOR'S OF 1400-, 1800-, AND 2240-CU FT CAPACITY WITH AN 800-CFM HEPA FILTER UNIT. CONCENTRATIONS OF MICROORGANISMS WERE MEASURED 9 TIMES DAILY AT APPROXIMATELY 2- TO 3-HOUR INTERVALS. SAMPLES WERE TAKEN IN EACH DOR WITH 1-HOUR REYNIERS AIR SAMPLERS DRAWING 1 CFM FOR 2 WEEKS WITHOUT AIR FILTRATION AND THEN FOR 2 WEEKS WITH AIR FILTRATION. IN A DOR USED FOR ROUTINE SCALING WITH AN ULTRASONIC INSTRUMENT, THE MEAN MICROBIAL AIR COUNT OF 21 VIABLE PARTICLES (VP)/CU FT WITHOUT AIR FILTRATION WAS REDUCED 93 PERCENT WHEN THE AIR WAS FILTERED. IN THIS DOR, PEAK RECOVERIES OF 185 VP/CU FT WITHOUT AIR FILTRATION WERE REDUCED 84 PERCENT WHEN THE AIR WAS FILTERED. BACTERIA RECOVERED DURING PEAK PERIODS WERE PREDOMINANTLY ALPHA-HEMOLYTIC STREPTOCOCCI OF THE VIRIDANS GROUP. IN TWO DOR'S USED ONLY FOR ROUTINE OPERATIVE DENTISTRY, MICROBIAL AIR COUNTS WERE LOWER, WITH MEAN VALUES OF 3-8 VP/CU FT AND PEAK VALUES OF 8-26 VP/CU FT WITHOUT AIR FILTRATION. THESE CONCENTRATIONS WERE REDUCED 65 PERCENT WHEN THE AIR WAS FILTERED. IT WAS CONCLUDED THAT UNDER NORMAL WORKING CONDITIONS AN 800-CFM HEPA FILTER UNIT IS EFFECTIVE IN REDUCING THE CONCENTRATION OF AIRBORNE MICROORGANISMS IN A DOR BY ABOUT 70 PERCENT. (AUTHOR) (U)

AD-762 299 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

A COMPARATIVE EVALUATION OF THE EFFECTIVENESS OF BACTERIA TRAPS USING AN OBJECTIVE METHOD FOR DETERMINING THE CONCENTRATION OF A BACTERIAL AEROSOL. (U)

JUN 73 9P KIKTENKO,V. S. ;KUDRYAVTSEV, S. I. ;PUSHCHIN,N. I. ;
REPT. NO. FTD-HT-23-0526-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VOPROSY SANITARNOI BAKTERIOLOGII O VIRUSOLGII, N.P., 1965 P109-113, BY VICTOR MESENZEFF.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *SAMPLERS), QUANTITATIVE ANALYSIS, AEROSOLS, EFFECTIVENESS, PARTICLES, MEASUREMENT, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE METHODS USED BY VARIOUS AUTHORS TO DETERMINE THE EFFECTIVENESS OF THE BACTERIA TRAPS BASED ON THE SEDIMENTATION AND FILTRATION PRINCIPLE RELY ON SUBJECTIVE METHODS OF ESTIMATION, WHICH AFFECTS THE ACCURACY OF THE OBTAINED RESULTS. AN OBJECTIVE METHOD IS PROPOSED FOR ESTIMATING THE EFFECTIVENESS OF THE BACTERIA TRAPS, USING THE PHOTOELECTRONIC PARTICLE COUNTER WHICH ENABLES ONE TO DETERMINE THE TRAPS PROPERTY OF DEVICES TAKING INTO ACCOUNT THE CONCENTRATION OF THE BACTERIAL AEROSOL PARTICLES DURING SAMPLING. (U)

AD-905 694L 15/2
EDGEWOOD ARSENAL MD

AUTOMATION OF GB ASSAYS FOR GAS FILTER BED STUDIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. AUG 70-FEB 71, NOV 72 19P HILL,DAVID L. I
REPT. NO. EA-TR-4483
PROJ: DA-1-W-662710-A-095
TASK: 1-W-662710-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; NOV 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*GB AGENTS, DETECTION), (*AIR FILTERS, PENETRATION), (*COLORIMETRIC ANALYSIS, GB AGENTS), CHEMICAL ANALYSIS, CHOLINESTERASE INHIBITORS, SENSITIVITY, MICROANALYSIS, ACETYLCHOLINE, CHOLINESTERASE, THIOLS, CHOLINES, ORGANIC PHOSPHORUS COMPOUNDS, AUTOMATIC, AIR POLLUTION (U)
IDENTIFIERS: AUTOANALYZERS, PROTECTION, *GB AGENTS (U)

AN AUTOMATED ASSAY METHOD FOR GB USING THE TECHNICON AUTOANALYZER HAS BEEN DEVELOPED. ITS PERFORMANCE SATISFIES THE NEEDS OF THE AIR FILTRATION SECTION FOR A PROCEDURE HAVING THE SENSITIVITY, CAPACITY, SAMPLE STABILITY, AND REPRODUCIBILITY REQUIRED FOR APPLICATION TO THE STUDY OF GB PENETRATION OF, OR DESORPTION FROM, TEST FILTER BEDS. A GB CONCENTRATION 0.5 NANOGRAM PER MILLILITER OF SAMPLE CAN BE MEASURED BY THIS METHOD. (AUTHOR) (U)

AD-862 277 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

AGENT SAMPLING/SEPARATION STUDIES ENCOUNTERED IN DUSTY ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 17 APR-16 JUL 69, SEP 69 41P ZELLER,HAROLD W. IUPTON, JAMES E. I
REPT. NO. ASD-3389
CONTRACT: DAAA15-69-C-0547
PROJ: DA-1-B-663705-D-401
TASK: 1-B-663705-D-40102

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*CHEMICAL WARFARE AGENTS, *TOXIC AGENT ALARMS), (*AEROSOLS, SEPARATION), DUST, CONTROLLED ATMOSPHERES, VEHICLES, SHELTERS, SAMPLING, RELIABILITY, GRAVITY, INERTIA, AIR FILTERS, DESIGN, HEATING (U)
IDENTIFIERS: AGENT CLOUD PARTICLES, CYCLONIC SEPARATORS (U)

THE DOCUMENT PRESENTS METHODS OF SAMPLING AGENT CLOUDS AND SEPARATING THESE AGENT AEROSOLS FROM INTERFERING PARTICULATE MATTER. INITIAL EMPHASIS IS THE SEPARATING OF DUST FROM THE TOTAL SAMPLE AND METHODS OF MAXIMIZING THE AMOUNT OF AGENT THAT REACHES THE DETECTOR. METHODS FOR SEPARATION ARE OBSERVED WITH EMPHASIS ON A CYCLONE SEPARATOR. CYCLONE DESIGN FACTORS ARE PRESENTED; A DESIGN FOR A MODEL CYCLONE IS PRESENTED. CALCULATIONS WERE MADE OF THE HEAT REQUIRED TO RAISE THE INCOMING AIR TEMPERATURE (INCLUDING HEAT LOSSES TO ENVIRONMENT) TO OVER 200F. (AUTHOR) (U)

AD-912 802L 15/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

IMPROVISED COLLECTIVE FILTER (CIVIL DEFENSE AGAINST ABC ATTACK) (IMPROVIZOVANY KOLEKTIVNI FILTR). (U)

JUN 72 9P HACHOTKA,MILOSLAV

REPT. NO. FSTC-HT-23-1472-71

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF ATOM (CZECHOSLOVAKIA) N7 P200 1970.

DESCRIPTORS: (*AIR FILTERS, *SHELTERS), (*CHEMICAL WARFARE AGENTS, AIR FILTERS), AIR CONDITIONING EQUIPMENT, VENTILATION, CHARCOAL, CIVIL DEFENSE, FALLOUT, RADIOLOGICAL WARFARE AGENTS, BIOLOGICAL WARFARE AGENTS, SEALS, SLAGS, IMPREGNATION, CZECHOSLOVAKIA (U)
IDENTIFIERS: *PROTECTION, TRANSLATIONS (U)

IN ASSURING PROTECTION OF THE POPULATION, EMPHASIS IS PLACED PRIMARILY ON THE CONSTRUCTION OF PERMANENT COLLECTIVE PROTECTION STRUCTURES WHICH ARE SUPPLEMENTED BY FIELD SHELTERS OF A SIMPLE TYPE AND BY INDIVIDUAL MEANS OF PROTECTION AGAINST CHEMICAL WARFARE AGENTS. THE VARIOUS TYPES OF PERMANENT SHELTERS BUILT IN PEACETIME AND OUTFITTED WITH COMMERCIALLY PRODUCED EQUIPMENT WOULD NOT BE SUFFICIENT TO PROVIDE COMPLETE PROTECTION OF ALL PERSONS. FOR THIS REASON SIMPLE SHELTERS AND SHELTERS OF THE FIELD TYPE ARE STILL BEING BUILT. IN ORDER FOR SUCH SHELTERS TO BE ABLE TO PROVIDE PROTECTION AGAINST RADIOACTIVE CONTAMINATION, CHEMICAL WARFARE AGENTS, AND BIOLOGICAL WARFARE AGENTS, THEY ARE OUTFITTED WITH IMPROVISED FILTER-VENTILATION EQUIPMENT DESCRIBED IN THIS REPORT. (U)

AD-898 300 13/11 15/2
DONALDSON CO INC MINNEAPOLIS MINN RESEARCH AND DEVELOPMENT DIV

COLLECTIVE PROTECTION FOR VEHICLES, VANS AND SHELTERS. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 5, SEP-NOV 68.
DEC 68 108P SCOTT,JOHN H.
CONTRACT: DAAA15-67-C-0715
PROJ: DA-1-B-663705-D-604, DA-1-B-633301-D-604
TASK: 1-B-663705-D-60401

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*CHEMICAL WARFARE AGENTS, PROTECTION), (*AIR FILTERS, DESIGN), (*BIOLOGICAL WARFARE AGENTS, PROTECTION), VEHICLES, INSTALLATION, SHELTERS, STRUCTURAL MEMBERS, TEST METHODS, CONFIGURATION, MATERIALS, PARTICLES, DOORS, FANS, PENETRATION, DUST, CONTROL SYSTEMS (U)
IDENTIFIERS: PROTECTION, EVALUATION, *GAS FILTERS, *PARTICULATES, VANS (U)

THE DOCUMENT COVERS A DEVELOPMENT PROGRAM TO PROVIDE MODULAR COLLECTIVE PROTECTION EQUIPMENT FOR A VARIETY OF VEHICLES, VANS AND SHELTERS. DESIGNS WERE ESTABLISHED FOR TWO OF FOUR PROTOTYPE GAS PARTICULATE FILTER UNITS AND WERE NEARLY COMPLETED FOR THE REMAINING TWO UNITS. THE FOLLOWING COMPONENT DESIGNS WERE FINALIZED FOR USE IN THE PROTOTYPE GPFUS: HOUSINGS, THREE DUST COLLECTORS, THREE AIRFLOW VALVES, PARTICULATE FILTERS, GAS FILTERS, CONTROL SYSTEMS AND CONTROL PANELS, PROTECTIVE ENTRANCES AND RAIN SHIELD AIR INLET PROTECTOR. SERVICE ENGINEERING EFFORTS CONTINUED HUMAN FACTORS, RELIABILITY, MAINTAINABILITY, AND VALUE ANALYSIS EVALUATIONS ON THE GAS AND PARTICULATE FILTERS, GPFU HOUSINGS, CONTROL PANELS, FAN ASSEMBLIES AND PROTECTIVE ENTRANCES. (AUTHOR) (U)

AD-820 010L 18/4 18/8
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

PLANNING RADIOLOGICAL RECLAMATION OF TEST FACILITIES AT KWAJALEIN CONTAMINATED BY PLUTONIUM. VOL. II - RADIOLOGICAL RECLAMATION PROCEDURES. (U)

MAY 67 117P BENNETT,CHARLES B. (OWEN, W. LEIGH)
REPT. NO. USNRDL-TR-67-68

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY. OTHERS TO CHIEF OF NAVAL MATERIAL, ATTN: CODE 0331, WASHINGTON, D. C. 20360.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-366 270L.

DESCRIPTORS: (*PLUTONIUM, RADIOACTIVE CONTAMINATION), (*KWAJALEIN ATOLL, RADIOACTIVE CONTAMINATION), REMOVAL, NUCLEAR WEAPONS, DEMOLITION CHARGES, SAFETY, HUMANS, MANPOWER, PROTECTIVE CLOTHING, TIME, MODIFICATION KITS, COUNTERMEASURES, AIR FILTERS, BUILDINGS, HOSES, WATER, WETTING, VEHICLES, CONCRETE, CONTAINERS, RECLAMATION, DECONTAMINATION, TEST FACILITIES (U)
IDENTIFIERS: SCRUBBING (U)

THIS REPORT DESCRIBES PROCEDURES FOR DEALING WITH PLUTONIUM CONTAMINATION AT KWAJALEIN. RADIOLOGICAL SAFETY PROCEDURES ARE OUTLINED FOR PERSONNEL IN PLUTONIUM-CONTAMINATED ENVIRONMENTS. TIME, MANPOWER, AND EQUIPMENT REQUIREMENTS ARE PRESENTED IN DETAIL FOR SPECIFICALLY RECOMMENDED RADIOLOGICAL RECLAMATION OPERATIONS. DESCRIPTIONS ARE PROVIDED OF THE ORGANIZATIONS AND FACILITIES NECESSARY FOR RECLAMATION AND RADIOLOGICAL SAFETY SUPPORT OPERATIONS. IN ADDITION, RECOMMENDATIONS ARE MADE FOR THE MODIFICATION OF FACILITIES PRIOR TO A CONTAMINATING EVENT SO AS TO INCREASE THE EFFICIENCY OF THE RADIOLOGICAL RECLAMATION OPERATION. (U)

170

AD-911 249L 13/1 13/11
UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT

LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY PARTICULATE AIR FILTER BANKS. (U)

DEC 70 18P DEMONBRUN,J. M. (CHOAT, E. E.)
REPT. NO. Y-JA-33-REV-2
CONTRACT: W-7405-ENG-26
MONITOR: GIDEP 325.16.00.00-CN-01

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 JUN 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO OFFICER-IN-CHARGE (CODE 842), FLEET MISSILE SYSTEMS ANALYSIS AND EVALUATION GROUP ANNEX, ATTN: GIDEP ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-REV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING (7TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: (*GAS FILTERS, MAINTENANCE), (*AIR FILTERS, MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED ATMOSPHERES, LEAKAGE(FLUID), VISUAL INSPECTION, INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON, BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE. LIKEWISE, THESE SAME CONTAMINANTS, USED IN A CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE SOPHISTICATED REQUIREMENTS, CAREFUL SERVICING OF HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING, AND TESTING FILTER BANKS. THIS PAPER RELATES SOME OF THE PRACTICES AND PROCEDURES THAT HAVE BEEN (U)

AD-906 554L 13/11 15/2
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

SHOCK TUBE TEST OF GAS PARTICULATE FILTER. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
DEC 72 14P PETERSON,ROBERT L. |
REPT. NO. BRL-MR-2251

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 20 JAN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, BALLISTIC RESEARCH LABS., ATTN: AMXBR-XSE, ABERDEEN PROVING GROUND, MD. 21005.

DESCRIPTORS: (*GAS FILTERS, SHOCK TUBES), (*AIR FILTERS, BLAST), SHELTERS, VEHICLES, AIR, DAMAGE ASSESSMENT, VULNERABILITY (U)
IDENTIFIERS: BLAST, VALVES, *PROTECTION, *GAS PARTICULATE FILTERS, GPFU(GAS PARTICULATE FILTER UNIT) (U)

THE RESULTS OF AN AIR BLAST TEST ON A GAS PARTICULATE FILTER ARE PRESENTED. THE FILTER UNIT WAS MOUNTED IN THE BRL EIGHT FOOT DIAMETER SHOCK TUBE AND EXPOSED TO THREE DURATION AIR BLASTS, AND RETURNED TO EDGEWOOD ARSENAL FOR DAMAGE ASSESSMENT. (AUTHOR) (U)

AD-907 915L 15/2 13/11
DESERET TEST CENTER FORT DOUGLAS UTAH

SURVEILLANCE/ENVIRONMENTAL TEST OF FILTER UNIT, GAS PARTICULATE FOUR-MAN, 12 CFM, M8A3. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 66-APR 72,
OCT 72 94P LUNN,JOHN C. ; JR.|
MCINTYRE,WILLIAM D. |
REPT. NO. DTC-FR-ES11
PROJ: [redacted]-X-666709-DL-19, USATECOM-5-ES-820-008-001
TASK: 1-X-666709-DL-1903

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AIR FILTERS, *CHEMICAL WARFARE AGENTS), (*ARMORED VEHICLES, AIR FILTERS), GAS FILTERS, PROTECTIVE MASKS, ENVIRONMENTAL TESTS, MULTIPLE OPERATION, AIR POLLUTION, CONTROLLED ATMOSPHERES, BIOLOGICAL WARFARE AGENTS, RADIOLOGICAL WARFARE AGENTS, AIR, PURIFICATION, HOSES, HOSE FITTINGS, BLOWERS, ELECTRIC CABLES, ELECTRIC SWITCHES, ELECTRIC CONNECTORS, STORAGE, AGING(MATERIALS), TANKS(COMBAT VEHICLES), TROPICAL TESTS, COLD WEATHER TESTS, DESERT TESTS, MODEL TESTS, VISUAL INSPECTION, FAILURE(MECHANICS), GAS FLOW, SEALS (U)
IDENTIFIERS: *PROTECTION, M-103 TANKS, M-103A1 TANKS, M-12A1 GAS FILTERS, M-13 FILTER ELEMENTS, M-12 GAS FILTERS, M-14 PROTECTIVE MASKS, M-8 FILTER UNITS, M-8A3 FILTER UNITS, *PARTICULATE FILTERS, TANK CREWS, TEMPERATE REGIONS (U)

THE ENVIRONMENTAL/SURVEILLANCE TEST OF THE FILTER UNIT, GAS PARTICULATE, TANK, FOUR-MAN, 12 CFM, M8A3 WAS CONDUCTED FROM APRIL 1966 TO APRIL 1972. TESTING WAS CONDUCTED AT AMBIENT TEMPERATURES BY THE FOLLOWING ENVIRONMENTAL TEST SITES: FORT GREELY, ALASKA (ARCTIC); YUMA PROVING GROUND, ARIZONA (DESERT); EDGEWOOD ARSENAL, MARYLAND (TEMPERATE); AND FORT CLAYTON, CANAL ZONE (TROPIC).

AD-443 840
DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA (ONTARIO)

THE ROLE OF DIFFUSION IN THE FILTRATION OF AEROSOLS OF SUB-MICRON PARTICLES. (U)

MAY 64 26P WILSON,L. G. (CAVANAGH,P. (
REPT. NO. DCBRL-430

UNCLASSIFIED REPORT
NOFORN
SUPPLEMENTARY NOTE(

DESCRIPTORS((*AEROSOLS, DIFFUSION), AIRINTAKE FILTERS, PARTICLE SIZE, GLASS TEXTILES, GRAVITY, ELECTRICAL PROPERTIES, PROBABILITY, MICROANALYSIS, MOTION, EFFECTIVENESS (U)
IDENTIFIERS(FILTRATION (U)

SOME EXPERIMENTS WERE DEVISED TO TEST THE CURRENTLY HELD VIEW THAT BROWNIAN MOTION IS AN IMPORTANT FACTOR IN THE FILTRATION OF SUB-MICRON PARTICLES BY FIBROUS FILTERS. IN THESE EXPERIMENTS BOTH STATIONARY AND FLOWING AEROSOLS WERE USED, AND THE DEPOSITION OF SUB-MICRON PARTICLES WAS MEASURED ON SURFACES AND ON FIBRES. UNDER CONDITIONS MADE AS SIMPLE AS PRACTICABLE, AN UNEXPECTED PHENOMENON (FORMATION OF 'VOIDS) WAS ENCOUNTERED WHICH COMPLICATED THE CONDITIONS. RESULTS INDICATED THAT THE EFFECTS OF BROWNIAN MOTION IN FIBROUS FILTERS WOULD BE MINOR COMPARED WITH OTHER MOTION EFFECTS, AT LEAST DOWN TO SIZES OF 0.1 MICRON DIAMETER. (AUTHOR) (U)

AD-841 325 15/2 13/8 7/4
UNION CARBIDE CORP PARMA OHIO CARBON PRODUCTS DIV

IMPROVED GAS SORBENTS FOR INDIVIDUAL AND COLLECTIVE PROTECTION END ITEMS. (U)

DESCRIPTIVE NOTE(QUARTERLY PROGRESS REPT. NO. 4, APR-JUN 69,
SEP 69 42P BERGQUIST,DONALD A. (LAUZAU, WILBUR R. (
CONTRACT(DAAA15-68-C-0699
PROJ(DA-1-B-662706-A-095
TASK(1-B-662706-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION(NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN(SMUEA-TSTI-T. EDGEWOOD, MD. 21010.
SUPPLEMENTARY NOTE(SEE ALSO QUARTERLY PROGRESS REPT. NO. 3, AD-857 802.

DESCRIPTORS((*CHEMICAL WARFARE AGENTS, GAS FILTERS), (*GAS FILTERS, CHARCOAL), (*CHARCOAL, MANUFACTURING), PILOT PLANTS, FLUIDIZED BED PROCESSES, CARBON TETRACHLORIDE, CHEMISORPTION, POROSITY, OXIDATION, HEAT OF ACTIVATION, AIR FILTERS, PROTECTIVE MASK FILTERS, EFFECTIVENESS (U)
IDENTIFIERS(ACTIVATED CARBON, COCONUT PIT CHAR, PROTECTION, *SUPERACTIVATED CARBON, WHETLERIZATION (U)

THE SUBJECT CONTRACT HAS BEEN UNDERTAKEN TO INVESTIGATE THE PREPARATION OF AND THE PERFORMANCE OF WHETLERIZED 'SUPERACTIVATED' CARBON FOR USE IN DEVICES FOR PROTECTING AGAINST CHEMICAL AGENTS. A SUPERACTIVATED CARBON IS ONE HAVING A CARBON TETRACHLORIDE ACTIVITY OF TYPICALLY 120% OR GREATER AS COMPARED WITH A MORE CONVENTIONAL ACTIVITY OF APPROXIMATELY 60%. PORE SPECTRA DATA ON ACTIVATED CHARCOAL SAMPLES WHICH WERE PRODUCED DURING PREVIOUS QUARTERS ARE PRESENTED IN A SIMPLIFIED FORMAT, AND INTERPRETATION IS GIVEN. THE LIFE TESTING PROGRAM HAS BEEN DELAYED BY MECHANICAL PROBLEMS. DETAILS OF THE CALCULATION OF PILOT PLANT PRODUCTION PARAMETERS ARE DISCUSSED. A THEORY IS PROPOSED THAT EXPLAINS THE SUPERIOR PERFORMANCE OF UNWHETLERIZED SUPERACTIVATED CHARCOAL BASED ON ITS SUPERIOR VOLUME ACTIVITY (CCL4 CAPACITY PER UNIT VOLUME(. (AUTHOR) (U)

AD-501 349L 13/11 (U) 15/2
AMERICAN CYANAMID CO STAMFORD CONN CENTRAL RESEARCH DIV

FEASIBILITY STUDIES ON AN ELECTRICALLY ENHANCED CATALYTIC AIR PURIFIER. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 2, OCT-DEC 68,
APR 69 26P MATSUDA,KEN ISEDLAK,JOHN A. I
CONTRACT: DAAA15-68-C-0640
PROJ: 0A-1-B-662706-A-095
TASK: 1-B-662706-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T. EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AIR POLLUTION, DECONTAMINATION), (*AIR, PURIFICATION), CATALYSTS, ELECTRIC CURRENTS (U) *ELECTROLYTIC CELLS, CHEMICAL WARFARE AGENTS, AIR FILTERS, ELECTRODES, GRAPHITE, OXIDATION, SULFURIC ACID, POROSITY, CATHODES(ELECTROLYTIC CELL), ANODES(ELECTROLYTIC CELL), MODEL TESTS, TOLUENES, FLOWMETERS, CALIBRATION, HYDROLYSIS, HUMIDITY, LEAD COMPOUNDS, DIOXIDES (U)
IDENTIFIERS: AIR PURIFIERS, CHLOROTRIFLUOROETHYLENE POLYMERS, PROTECTION, ETHYLENE/POLYTETRAFLUORO (U)

EXTENSIVE OPERATING EXPERIENCE HAS BEEN GAINED WITH THE AIR PURIFICATION CELL INSTALLED IN A VERSATILE SYSTEM FOR SUPPLYING CONTAMINATED AIR AT VARIOUS EXPOSURE RATES. INITIAL WORK EMPLOYED TOLUENE CONTAMINANT TO EVALUATE CELL PERFORMANCE WITH RESPECT TO EXTENT AND RATE OF CONTAMINANT REMOVAL, IDENTITY OF EFFLUENT PRODUCTS, AND MATERIAL BALANCE OF THE OXIDATION. IT WAS SHOWN THAT THE CELL IS CAPABLE OF MAINTAINING ADEQUATE CURRENT DENSITIES AT USEFUL CHALLENGE LEVELS. TOTAL REMOVAL OF TOLUENE IS POSSIBLE AT RELATIVELY HIGH EXPOSURE RATES AND COMPLETE OXIDATION TO CARBON DIOXIDE AND WATER CAN BE ACHIEVED UNDER STRENUOUS CONDITIONS. THE RATE OF TOLUENE REMOVAL WAS FOUND TO DEPEND ON ANODE SURFACE AREA AND WAS FIRST-ORDER WITH RESPECT TO TOLUENE. THE KINETIC STUDIES SHOWED THAT ANODE SURFACE AREA, AS WELL AS OXIDIZING AGENT CONCENTRATION AND CURRENT DENSITY, REMAINED CONSTANT OVER A RANGE OF EXPOSURE RATES; THE ANODE WAS NOT POISONED DURING THE OXIDATION PROCESS. THESE EXPERIMENTS RESULTED IN MODIFICATION OF THE CELL STRUCTURE TO ACHIEVE (U)

AD-869 429L 21/5
NAVAL AIR PROPULSION TEST CENTER PHILADELPHIA PA AERONAUTICAL ENGINE DEPT

EVALUATION OF THE GENERAL ELECTRIC MODEL NO. 9899537-738 INLET PARTICLE SEPARATOR. (U)

DESCRIPTIVE NOTE: PHASE REPT.,
DEC 69 73P ELSASSER,THEODORE E. I
MCEWAN,JAMES A. I
REPT. NO. NAPTC-AED-1916

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 1 JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL AIR SYSTEMS COMMAND, ATTN: AIR-536, WASHINGTON, D. C. 20360.

DESCRIPTORS: (*GAS TURBINES, *AIR FILTERS), HELICOPTER ENGINES, PARTICLES, SEPARATION, INGESTION(ENGINES), SAND, DUST, VORTICES, EFFICIENCY, PRESSURE, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: EVALUATION, T-58 ENGINES, T-58-GE-10 ENGINES, T-58-GE-8 ENGINES (U)

THE EVALUATION INCLUDED A THOROUGH EFFICIENCY TEST PROGRAM AND A COMPLETE PRESSURE PROFILE ANALYSIS. IN ADDITION, PERFORMANCE TESTS OF A T58-GE-10 ENGINE WERE CONDUCTED WITH THE SEPARATOR INSTALLED TO DETERMINE THE ACTUAL ENGINE PERFORMANCE PENALTIES. THE RESULTS OF ALL TESTS CONDUCTED ARE PRESENTED ALONG WITH A COMPLETE DESCRIPTION OF THE INLET EVALUATION FACILITY. (AUTHOR) (U)

AD-653 578 21/5 13/9
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

A REVIEW OF THE STATE OF THE ART OF CYCLONE-TYPE SEPARATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT., JAN-JUN 66,
MAR 67 71P PINCHAK,ALFRED C. I
CONTRACT: AF 33(615)-1915
PROJ: AF-7116
MONITOR: ARL 67-0047

UNCLASSIFIED REPORT

DESCRIPTORS: (*CENTRIFUGE SEPARATION, STATE-OF-THE-ART REVIEWS), (*GAS TURBINES, AIR FILTERS), DUST, SEPARATION, EFFICIENCY, GAS FLOW, INGESTION(ENGINES) (U)
IDENTIFIERS: CYCLONES(MECHANICAL) (U)

THE REPORT REPRESENTS A BRIEF REVIEW OF THE STATE OF THE ART OF CYCLONE TYPE SEPARATORS WHICH MAY HAVE APPLICATION IN THE GAS TURBINE-DUST INGESTION PROBLEM. EXPERIMENTAL DATA OF VARIOUS INVESTIGATORS ARE PRESENTED. EMPHASIS IS PLACED ON THE INTERACTION BETWEEN THE SEPARATION EFFICIENCY, FLOW RATE, PRESSURE DROP, AND GEOMETRICAL PARAMETERS. A SIMPLE ANALYTICAL MODEL PROVIDED A MEANS FOR LOGICALLY COMPARING THE SEPARATOR'S PERFORMANCE REPORTED BY DIFFERENT INVESTIGATORS. A REVIEW OF SOME RECENT THEORETICAL ADVANCES IS ALSO PRESENTED. SPECIAL CONSIDERATION IS GIVEN TO THE PREDICTION OF THE FRACTIONAL SEPARATION EFFICIENCY AND THE SECONDARY INTERNAL FLOW PATTERNS. IN ADDITION TO THE STANDARD TEXT REFERENCES, AN EXTENSIVE BIBLIOGRAPHY IS INCLUDED WHICH SHOULD BE OF DIRECT RELEVANCE TO ENGINEERS DESIGNING HIGH CAPACITY CYCLONE TYPE SEPARATORS. (AUTHOR) (U)

AD-899 492L 13/10.1 13/11
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER ANNAPOLIS MD

CONTROL OF DEGRADATION EFFECTS IN MONOETHANOLAMINE SOLUTION USING AN ACTIVATED CARBON-MEA FILTER ASSEMBLY. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT.,
JUN 72 40P CAREY,RICHARD B. I
REPT. NO. NSRDC-28-182
PROJ: SF35-433-002
TASK: 18604

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL SHIP SYSTEMS COMMAND, ATTN: SHIPS-03413, WASHINGTON, D. C. 20360.
SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES; ALL DDC REPRODUCTIONS WILL BE IN BLACK AND WHITE.

DESCRIPTORS: (*SUBMARINES, NUCLEAR POWERED SHIPS), (*GAS FILTERS, CARBON), (*AIR FILTERS, PURIFICATION), ETHANOLS, AMINES, SOLUTIONS(MIXTURES), ABSORPTION, GAS FLOW, CARBON DIOXIDE, DEGRADATION, CHARCOAL, RECLAMATION, FLUIDIZED BED PROCESSES, MATERIAL SEPARATION, MEMBRANES, AIR POLLUTION, CLOSED ECOLOGICAL SYSTEMS, REMOVAL, SHIPBOARD (U)
IDENTIFIERS: ACTIVATED CARBON, ETHANOLAMINE, *SCRUBBERS, SHIPALT, SSBN 608 VESSEL (U)

THE CURRENT PRACTICE OF RENEWING THE MONOETHANOLAMINE (MEA) SOLUTION USED IN THE CARBON DIOXIDE SCRUBBERS OF NUCLEAR SUBMARINES EVERY 200-250 HOURS IS TROUBLESOME AND TIME-CONSUMING. TREATMENT OF THE AMINE SOLUTION WITH ACTIVATED CARBON WILL ELIMINATE THE NECESSITY FOR REMOVING THE SOLUTION AND CLEANING THE SCRUBBER EVERY 200-250 HOURS, REDUCE AIR CONTAMINATION, ELIMINATE SOLUTION FOAMING, HELP REDUCE ABSORBER PRESSURE DROPS, AND HELP MAINTAIN RATED AIRFLOW RATES. A SHIPALT PACKAGE IS PRESENTED, WHICH CAN BE EASILY BACKFITTED TO ALL FLEET SCRUBBERS. ALSO INCLUDED IS A SUMMARY OF THE DEVELOPMENT OF THIS ASSEMBLY. (AUTHOR) (U)

AD-673 121 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY, PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY. (U)

MAY 68 60P HARSTAD,J. BRUCE ;FILLER, MELVIN E. ;

REPT. NO. SMUFD MISC PUB-29
PROJ: 0A-18622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS FILTERS, PERFORMANCE(ENGINEERING)), AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS SUBTILIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES, PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: *AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (1) ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (2) COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM THESE FILTER PAPERS, AND (3) HIGH-EFFICIENCY FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES RANGING FROM 1.3 TO 150 FEET PER MINUTE (FPM) WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS GENERATED BY THE WHITBY SONIC JET IONIZER. (U)
(AUTHOR)

AD-894 659L 15/2
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL: XM51. CHEMICAL CHALLENGE. (U)

DESCRIPTIVE NOTE: DATA REPT.,
APR 68 50P GOOLEY,WALTER , JR;
REPT. NO. DPG-DR-E823
PROJ: RDT/E-1-8-643606-D-017, USATECOM-8-6-6242-11
TASK: 1-8-643606-D-01709

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEPD-TT-JP-I(S). FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SHELTERS, MOBILE), (*INFLATABLE STRUCTURES, MOBILE), PROTECTION, CHEMICAL WARFARE AGENTS, BIOLOGICAL WARFARE AGENTS, GAS FILTERS, PRESSURIZATION, EFFECTIVENESS, TESTS, G AGENTS, AIR FILTERS, PROTECTION, CONTROLLED ATMOSPHERES (U)
IDENTIFIERS: *PROTECTION, GB AGENTS, *XM-51 COLLECTIVE PROTECTION SHELTERS, U/A REPORTS, *XM-51 COLLECTIVE PROTECTION SHELTERS (U)

THE XM51 CHEMICAL-BIOLOGICAL COLLECTIVE PROTECTION SHELTER SYSTEM (FORMERLY CB PRESSURIZED POD) IS BEING DEVELOPED TO PROVIDE AN EASILY TRANSPORTABLE INFLATABLE FIELD SHELTER SYSTEM WHICH WILL PROVIDE PURIFIED, ENVIRONMENTALLY CONTROLLED AIR TO TROOPS USING THE SHELTER. THE XM51 IS ENVISIONED AS PRIMARILY A REST AND RELIEF STATION. OTHER POSSIBLE USES ARE AS A COMMAND POST, COMMUNICATIONS CENTER, BATTALION AID STATION AND AIR OPERATIONS CENTER. (U)

AD-725 593 21/5
PRATT AND WHITNEY AIRCRAFT WEST PALM BEACH FLA FLORIDA RESEARCH AND DEVELOPMENT CENTER

INVESTIGATION OF FEASIBILITY OF INTEGRAL GAS TURBINE ENGINE SOLID PARTICLE INLET SEPARATORS. PHASE II. FEASIBILITY DEMONSTRATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 71 66P MCANALLY,WILLIAM J. , IIII
SCHILLING,MAX T. ;
REPT. NO. PWA-FR-919;
CONTRACT: DAAJ02-70-C-0003
PROJ: DA-1-6-162207-AA-71
TASK: 1-6-162207-AA-7109
MONITOR: USAAVLABS TR-71-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PHASE I, AD-876 983.

DESCRIPTORS: (*AIR FILTERS, FEASIBILITY STUDIES), (*GAS TURBINES, DESIGN), (*HELICOPTER ENGINES, AIR FILTERS), SAND, DUST, SEPARATION, INGESTION(ENGINES) (U)

TWO DIFFERENT SAND AND DUST PARTICLE SEPARATOR TEST RIGS WERE FABRICATED AND TESTED TO EVALUATE SEPARATION EFFICIENCY, AERODYNAMIC PERFORMANCE CHARACTERISTICS, AND OPERATION IN RAIN AND FOLIAGE INGESTION CONDITIONS. THE SEMI-REVERSE-FLOW SEPARATOR UTILIZED FIXED TURNING VANES ON A CONTOURED HUB TO INDUCE SWIRL IN AN ANNULAR DUCT. AT DESIGN AIRFLOW OF 8 LB/SEC AND 40% SCAVENGE FLOW, THE SEMI-REVERSE-FLOW SEPARATOR DEMONSTRATED 88.5% SEPARATION EFFICIENCY WITH AC COARSE TEST DUST AT AN AVERAGE PRESSURE DROP OF 2.8 IN. H2O. THE POWERED MIXED-FLOW SEPARATOR ATTEMPTED TO UTILIZE THE STRONG CENTRIFUGAL FIELD AVAILABLE IN A MIXED-FLOW IMPELLER TURNING AT THE HIGH SPEEDS CHARACTERISTIC OF SMALL GAS TURBINE ENGINES TO ACHIEVE PARTICLE SEPARATION. AT THE DESIGN AIRFLOW OF 8 LB/SEC, IT DEMONSTRATED A MAXIMUM SEPARATION EFFICIENCY OF 58.7% WITH 8.4% SCAVENGE FLOW AND AN AVERAGE PRESSURE RISE OF 4.74 PSI. BOTH SEPARATOR CONCEPTS WERE DETERMINED TO BE FEASIBLE AND THE SEMI-REVERSE-FLOW SEPARATOR IS CONSIDERED TO BE SUPERIOR TO CURRENT ENGINE AIR PARTICLE SEPARATORS FOR THE MAJORITY OF ASPECTS INVESTIGATED. (AUTHOR) (U)

AD-700 929 6/11 13/11 13/10
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

AEROSOL BEHAVIOR IN HIGH PRESSURE ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 2 (FINAL), 1 MAR 69-28 FEB 70,
FEB 70 36P GUSSMAN,ROBERT A. ISACCO, ANTHONY M. ;
REPT. NO. BBN-1899
CONTRACT: N00019-69-C-0228
PROJ: NR-303-829

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 1 MAR 68-28 FEB 69, AD-683 799.

DESCRIPTORS: (*UNDERWATER VEHICLES, *CONTROLLED ATMOSPHERES), (*AEROSOLS, HIGH PRESSURE), (*FLUID FILTERS, DESIGN), HELIUM, OXYGEN, RESPIRATION, PARTICLE SIZE, SEDIMENTATION, LUNG, ELECTROSTATIC PRECIPITATION, DIFFUSION, TEST METHODS (U)
IDENTIFIERS: *AEROSOL FILTRATION, *AIR CLEANERS, DEEP OCEAN VEHICLES (U)

THE SECOND YEAR OF A STUDY HAS BEEN COMPLETED WHOSE MAIN PURPOSE IS TO ELUCIDATE HAZARDS TO PERSONNEL ARISING FROM AEROSOLS IN HIGH PRESSURE HELIUM-OXYGEN ATMOSPHERES. THE YEAR'S EFFORTS INCLUDED: EXPERIMENTAL STUDIES ON THE GENERATION OF AEROSOLS IN THE HIGH PRESSURE ENVIRONMENT, PULMONARY DEPOSITION MODELING, THEORETICAL FILTER EFFICIENCY CALCULATIONS, AND THE CONSTRUCTION OF A HIGH PRESSURE FILTRATION EFFICIENCY TEST APPARATUS. THE FIRST TWO TOPICS LISTED ARE DESCRIBED SEPARATELY IN A PREVIOUS SPECIAL REPORT, AD-683 799. (AUTHOR) (U)

AD-769 678 13/11
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

FINE AIR FILTER. (U)

APR 73 7P BUROVOI,R. A. ICHATSKII,V. P. IKAMASHIN,V. O. IMYULLYARI,V. I. I KOSTENKO,A. F. I
REPT. NO. FTD-HT-23-293-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR) 216 675 P1-2, 11 APR 68, BY DEAN F. W. KOOLBECK.

DESCRIPTORS: (*GAS FILTERS, DESIGN), AIR, PARTICLE SIZE, PATENTS, SEPARATION, USSR (U)
IDENTIFIERS: *AIR FILTERS, TRANSLATIONS (U)

FINE AIR FILTER--TRANSLATION.

177

AD-901 208 13/2 6/6
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY (ENGLAND)

THE ESTIMATION OF LOW CONCENTRATIONS OF SMOKE IN AIR WITH POSSIBLE APPLICATION TO GASES AND VAPOURS. (U)

MAY 72 14P NASH,T. I
REPT. NO. MRE-63

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, DETECTION), (*REFLECTOMETERS, AIR POLLUTION), SMOKE, EXHAUST GASES, VAPORS, GAS FILTERS, AIR FILTERS, MEASUREMENT, PAPER, REFLECTIVITY, SENSITIVITY, PHOTOTUBES, SPINNING(INDUSTRIAL PROCESSES), PHOTOELECTRIC EFFECT, PHOTOSENSITIVITY, CALIBRATION, SAMPLING, SAMPLERS, PREDICTIONS, SULFIDES, IMPREGNATION, GREAT BRITAIN (U)
IDENTIFIERS: DYNAMIC REFLECTOMETERS, HYDROGEN SULFIDE, MILLIPORE FILTERS (U)

IF POLLUTED AIR IS DRAWN THROUGH A WHITE FILTER PAPER, PARTICLES OF SMOKE ARE RETAINED AND CAUSE SOILING. THE LOSS OF REFLECTANCE OF THE PAPER CAN BE USED AS AN INDEX OF THE AMOUNT OF LIGHT-ABSORBING AEROSOL IN THE AIR SAMPLE. THE METHOD IS RATHER INSENSITIVE, AND UNDER CONDITIONS OF LOW POLLUTION IT MAY BE NECESSARY TO SAMPLE FOR MANY HOURS IN ORDER TO OBTAIN A SIGNIFICANT READING. A NEW KIND OF REFLECTOMETER IS NOW DESCRIBED FOR WHICH SAMPLING TIMES CAN BE REDUCED FROM HOURS TO MINUTES AND THE PUMPING RATE REDUCED AT LEAST TENFOLD. THE SAME INSTRUMENT CAN BE USED, WITHOUT MODIFICATION, FOR THE ESTIMATION OF SOME GASES AND VAPOURS AT VERY LOW AERIAL CONCENTRATION. (AUTHOR) (U)

AD-770 888 13/11
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

AN ELECTROSTATIC AEROSOL FILTER. (U)

NOV 73 6P DEREZA,L. K. ITYCHINSKII, B. S. IPESTUN,A. F. I
REPT. NO. FTD-HT-23-791-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR) 332 861 P1-2, 21 MAR 72. BY MICHAEL L. SEIDEL.

DESCRIPTORS: *AIR FILTERS, *AEROSOLS, ELECTRIC CHARGE, DESIGN, TRANSLATIONS, USSR, PATENTS (U)

THE PURPOSE OF THIS INVENTION IS INCREASED EFFICIENCY OF AEROSOL TRAPPING AND THE SIMPLIFICATION OF FILTER DESIGN. THIS IS ACHIEVED BY EQUIPPING THE FILTER WITH A ZIGZAG-SHAPED GAS IMPERMEABLE PARTITION WHICH DIVIDES THE BODY OF THE FILTER INTO TWO CHAMBERS, ONE OF WHICH IS COMBINED WITH THE DEVICE FOR THE CIRCULATION OF THE ELECTRIFYING AGENT AND THE OTHER WITH THE INLET AND OUTLET DUCTS FOR THE PURIFIED AIR. (U)

178

AD-766 711 1/3 13/11 18/3
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

COCKPIT AIR FILTRATION REQUIREMENTS OF THE B-1 IN A NUCLEAR DUST ENVIRONMENT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JUL 72-APR 73,
JUL 73 134P PATRICK,RAYFORD P. I
YINGLING,WILLIAM A. IARNETT,GEORGE D. I
REPT. NO. AFWL-TR-73-83
PROJ: AF-8809
TASK: 880903

UNCLASSIFIED REPORT

DESCRIPTORS: (*COCKPITS, CONTROLLED ATMOSPHERES), (*AIR FILTERS, DESIGN), (*JET BOMBERS, NUCLEAR EXPLOSIONS), RADIATION HAZARDS, DOSAGE, AIR CONDITIONING EQUIPMENT, PARTICLE SIZE, DISTRIBUTION FUNCTIONS, THREAT EVALUATION, SURFACE BURST, DUST (U)
IDENTIFIERS: B-1 AIRCRAFT (U)

RESULTS ARE PRESENTED WHICH WILL AID IN DETERMINING COCKPIT FILTRATION REQUIREMENTS FOR THE B-1 ENVIRONMENTAL CONTROL SYSTEM WHEN THE B-1 PENETRATES RADIOACTIVE DUST CLOUDS GENERATED BY SURFACE DETONATIONS OF NUCLEAR WEAPONS. THE IONIZING DOSES ACCUMULATED FROM BEING SURROUNDED BY THE RADIATING CLOUD AND THE DUST MASS AND ASSOCIATED IONIZING DOSES FROM DUST TRAPPED IN THE FILTER AND IN THE COCKPIT ARE PRESENTED. A TECHNIQUE FOR DETERMINING THE FILTER POINT DESIGN CONDITIONS IS DISCUSSED. REPRESENTATIVE CANDIDATE FILTERS ARE INVESTIGATED, AND AN OPTIMUM FILTER IS SELECTED FROM THE CANDIDATES. THE EVALUATION TECHNIQUES PRESENTED HERE MAY BE USED TO INVESTIGATE THE ADEQUACY OF ANY PROPOSED FILTER. (AUTHOR) (U)

AD-781 148 7/1 13/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE STUDY OF THE STAGED REMOVAL OF FINELY DISPERSED DUST CONTAINING FREE SIO2 FROM AIR USING VENTURI SCRUBBERS. (U)

JUN 74 9P AVERBUKH,V. YA. (AVERBUKH, YA. D. IKUZMIN,V. A.)
REPT. NO. FTD-HT-23-1316-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF URALSKII POLITEKHNICHESKII INSTITUT, SVERDLOVSK. TRUDY (USSR) N205 P101-105 1972. BY RAY E. ZARZA.

DESCRIPTORS: *VENTURI TUBES, *SCRUBBERS, *DUST CONTROL, *AIR CLEANERS, SILICON DIOXIDE, PURIFICATION, TRANSLATIONS, USSR (U)
IDENTIFIERS: INDOOR AIR POLLUTION, WET METHODS, VENTURI SEPARATORS (U)

IN TURBULENT GAS SCRUBBERS OF THE 'VENTURI TUBE' TYPE, THE REMOVAL OF SUCH DUST FROM AIR CAN BE QUITE EFFECTIVE. HOWEVER, A DEVICE OF THIS TYPE DEMANDS LARGE EXPENDITURES OF ELECTRIC POWER. RESEARCH ON THE ABSORPTION OF AMMONIA AND SULFUR TRIOXIDE IN VENTURI TUBES HAS INDICATED THAT RATHER GOOD RESULTS CAN BE ATTAINED BY STAGED ABSORPTION WITH RELATIVELY SMALL EXPENDITURES OF ELECTRIC POWER. BASED ON THE SIMILARITY OF THE LAWS OF THE KINETICS OF ABSORPTION AND WET DUST TRAPPING, IT WAS DECIDED TO CONDUCT AN INVESTIGATION OF STAGED DUST TRAPPING IN VENTURI TUBES. (U)

AD-905 916 13/11 13/2 15/2 6/18
DEFENCE RESEARCH ESTABLISHMENT OTTAWA (ONTARIO)

ESTIMATION FOR THE RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS. (U)

SEP 72 39P WHEAT,JAMES A. (HYDE,J. COLIN)
REPT. NO. DREO-R-663

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*GAS FILTERS, CHARCOAL), (*AIR POLLUTION, GAS FILTERS), ADSORPTION, AIR FILTERS, PROTECTIVE MASK CANISTERS, FLUOROHYDROCARBONS, LIFE EXPECTANCY, GAS FLOW, AIR CONDITIONING EQUIPMENT, CHEMICAL WARFARE AGENTS, NUCLEAR PARTICLES, NONDESTRUCTIVE TESTING, SEALS, LEAKAGE(FLUID), TEST METHODS, HUMIDITY, EFFICIENCY, LEAK DETECTORS, RADIOACTIVE CONTAMINATION, CHEMICAL CONTAMINATION, CANADA (U)
IDENTIFIERS: ACTIVATED CARBON, PROTECTION, FREON 113 (U)

A METHOD HAS BEEN DEVELOPED FOR ESTIMATING THE RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS. SINCE THE METHOD IS NON-DESTRUCTIVE AND USES A LOW CONCENTRATION OF A NON-TOXIC TEST GAS, IT CAN BE APPLIED TO INSTALLED COLLECTIVE PROTECTORS. IT CAN ALSO BE USED AS A NON-DESTRUCTIVE LABORATORY TEST METHOD FOR PROTECTIVE MASK CANISTERS OR OTHER SMALL CHARCOAL FILTERS. IN LABORATORY EXPERIMENTS, BEDS OF CHARCOAL WERE CHALLENGED WITH FREON-113 AND THE TIME REQUIRED FOR THE EXIT CONCENTRATION TO REACH 0.005% OF THE INLET CONCENTRATION WAS DETERMINED. IT WAS DEMONSTRATED THAT BREAK TIME WAS RELATED TO THE AMOUNT OF MATERIAL ADSORBED ON THE CHARCOAL AND ALSO TO THE LENGTH OF TIME IN SERVICE. BREAK TIME ALSO DEPENDED UPON FLOW RATE, INLET CONCENTRATION, TEMPERATURE RELATIVE HUMIDITY AND BED DEPTH. EQUATIONS WERE DEVELOPED TO RELATE THE BREAK TIME OF BEDS OF FRESH CHARCOAL WITH THESE FIVE VARIABLES. TO ESTIMATE THE RESIDUAL CAPACITY OF A FILTER, ITS MEASURED BREAK TIME WOULD BE COMPARED WITH THE BREAK TIME CALCULATED FOR A BED OF FRESH CHARCOAL. A GRAPHICAL METHOD OF CARRYING OUT THE CALCULATIONS IS GIVEN. (AUTHOR) (U)

AD-901 206 13/2 6/6
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY (ENGLAND)

THE ESTIMATION OF LOW CONCENTRATIONS OF SMOKE IN AIR WITH POSSIBLE APPLICATION TO GASES AND VAPOURS. (U)

MAY 72 19P NASH,T. I
REPT. NO. MRE-63

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, DETECTION), (*REFLECTOMETERS, AIR POLLUTION), SMOKE, EXHAUST GASES, VAPORS, GAS FILTERS, AIR FILTERS, MEASUREMENT, PAPER, REFLECTIVITY, SENSITIVITY, PHOTOTUBES, SPINNING(INDUSTRIAL PROCESSES), PHOTOELECTRIC EFFECT, PHOTOSENSITIVITY, CALIBRATION, SAMPLING, SAMPLERS, PREDICTIONS, SULFIDES, IMPREGNATION, GREAT BRITAIN (U)
IDENTIFIERS: DYNAMIC REFLECTOMETERS, HYDROGEN SULFIDE, MILLIPORE FILTERS (U)

IF POLLUTED AIR IS DRAWN THROUGH A WHITE FILTER PAPER, PARTICLES OF SMOKE ARE RETAINED AND CAUSE SOILING. THE LOSS OF REFLECTANCE OF THE PAPER CAN BE USED AS AN INDEX OF THE AMOUNT OF LIGHT-ABSORBING AEROSOL IN THE AIR SAMPLE. THE METHOD IS RATHER INSENSITIVE, AND UNDER CONDITIONS OF LOW POLLUTION IT MAY BE NECESSARY TO SAMPLE FOR MANY HOURS IN ORDER TO OBTAIN A SIGNIFICANT READING. A NEW KIND OF REFLECTOMETER IS NOW DESCRIBED FOR WHICH SAMPLING TIMES CAN BE REDUCED FROM HOURS TO MINUTES AND THE PUMPING RATE REDUCED AT LEAST TENFOLD. THE SAME INSTRUMENT CAN BE USED, WITHOUT MODIFICATION, FOR THE ESTIMATION OF SOME GASES AND VAPOURS AT VERY LOW AERIAL CONCENTRATION. (AUTHOR) (U)

AD-908 619L 13/2
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

LIQUID FILM SMOKE SCRUBBER - A FEASIBILITY STUDY. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
FEB 73 36P FU,T. T. I
REPT. NO. NCEL-TN-1268
PROJ: ZF61-512
TASK: ZF61-512-001

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; FEB 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL CIVIL ENGINEERING LAB., PORT HUENEME, CALIF. 93043.

DESCRIPTORS: (*AIR POLLUTION, SMOKE), (*SMOKE, CONTROL), FOAM, FILMS, SURFACE PROPERTIES, INTERFACIAL TENSION, AEROSOLS, AEROSOL GENERATORS, COMBUSTION PRODUCTS, SURFACE ACTIVE SUBSTANCES, SPRAYS, BUBBLES, ABSORPTION, PURIFICATION, AIR, JET ENGINE FUELS, AFTERBURNING, ELECTROSTATIC PRECIPITATION, CENTRIFUGE SEPARATION, GAS FILTERS, FEASIBILITY STUDIES (U)
IDENTIFIERS: JP-4 FUELS, *LIQUID FILM SMOKE SCRUBBING, *SCRUBBERS, SMOKE ABATEMENT (U)

A LIQUID FILM SMOKE SCRUBBING CONCEPT IS DESCRIBED. THE FEASIBILITY OF THIS CONCEPT WAS STUDIED EXPERIMENTALLY USING THE HIGH EXPANSION FOAM GENERATORS ON HAND TO PRODUCE THE LIQUID FILMS AND JP-4 FUEL FINES TO PRODUCE THE SMOKE. THE EXPERIMENTS WERE CONDUCTED IN A 5FT X 7FT FIRE TEST WIND TUNNEL. TEST RESULTS SHOW THAT THE SCRUBBING ACTION TOOK PLACE MOSTLY AT THE BUBBLE FILMS WHICH SUBSTANTIATES THE VALIDITY OF THE BASIC CONCEPT. DUE TO THE LIMITATIONS OF THE PRESENT EXPERIMENTAL SETUP, ONLY ABOUT 50% SCRUBBING EFFICIENCY COULD BE OBTAINED AND THE SYSTEM SUFFERED FROM EXCESSIVE FOAM ACCUMULATIONS. BASED ON ANALYSES AND TEST RESULTS, IT WAS CONCLUDED THAT THESE DEFICIENCIES CAN BE GREATLY IMPROVED AFTER THE FOLLOWING DEVELOPMENTS ARE MADE: (1) A METHOD FOR PRODUCING SMALL SIZE FOAM BUBBLES WITH HIGH EXPANSION RATIOS; (2) A SMOKE RESISTANT AND FAST DRAINING HIGH EXPANSION FOAM CONCENTRATE FORMULATION. BECAUSE OF THE SIMPLE CONSTRUCTION AND THE EXTRAORDINARY LARGE SURFACE CONTACT OBTAINABLE, THIS METHOD IS POTENTIALLY ECONOMICAL AND EFFECTIVE IN POLLUTION CONTROL. (AUTHOR) (U)

AD-809 497 13/1 15/2
FORT DETRICK FREDERICK MD

PENETRATION OF SUBMICRON T1 BACTERIOPHAGE AEROSOLS AND BACTERIAL AEROSOLS THROUGH COMMERCIAL AIR FILTERS. (U)

NOV 66 14P HARSTAD,J. BRUCE (DECKER, HERBERT M. (BUCHANAN,LEE M. (FILLER,MELVIN E.)

REPT. NO. SNUFD-TM-328
PROJ: DA-1-C-692401-A-072

UNCLASSIFIED REPORT

DESCRIPTORS: (*BACTERIAL AEROSOLS, *GAS FILTERS), PENETRATION, BACTERIOPHAGES, TEST METHODS, EFFECTIVENESS, PARTICLES, PARTICLE SIZE, SPORES, BACTERIA, CLEANING, LIQUID FILTERS, PAPER, STABILITY, PURIFICATION, BACILLUS SUBTILIS (U)

181

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON PARTICLES (0.7 MICRON MMD). SUBMICRON AEROSOLS WERE PRODUCED FROM CONCENTRATED AQUEOUS SUSPENSIONS OF HIGHLY PURIFIED T1 BACTERIOPHAGE. TESTS WERE CONDUCTED TO COMPARE AIR FILTERS IN REMOVING SUBMICRON T1 PHAGE AEROSOLS AND BACTERIAL AEROSOLS OF BACILLUS SUBTILIS VAR. NIGER SPORES. THE BACTERIAL AEROSOLS WERE COMPOSED MAINLY OF SINGLE SPORES AND HAD A MMD OF 1 MICRON. SUBMICRON AEROSOL PENETRATION AVERAGED 1/3000%. BACTERIAL AEROSOL PENETRATION AVERAGED 1/20,000,000%. ARCHITECTS, ENGINEERS, AND RESEARCH INVESTIGATORS CONCERNED WITH THE CONTROL OF SUBMICRON PARTICLES MIGHT CONSIDER FILTRATION RATHER THAN OTHER METHODS OF AIR CLEANING. (AUTHOR) (U)

AD-809 497 6/13 15/2
SPACE-GENERAL CORP EL MONTE CALIF

FLUORESCENT ANTIBODY STAINING TECHNIQUE FIELD EVALUATION MODEL DEVELOPMENT. VOLUME I. TECHNICAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 FEB 65-15 NOV 66 ON PHASE 2.
NOV 66 310P RINNINGS,GERALD F. (MEYER, TED H. (WELLS,ARTHUR F. (WADE,ROGER C. (MADEL,MARVIN K.)
CONTRACT: DA-18-064-AMC-299(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701. ATTN: TECHNICAL RELEASES SECTION, TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (*FLUORESCENT ANTIBODY TECHNIQUES, TEST EQUIPMENT), (*BACTERIAL AEROSOLS, FLUORESCENT ANTIBODY TECHNIQUES), INSTRUMENTATION, DESIGN, CONSTRUCTION, PERFORMANCE(ENGINEERING), IMMUNE SERUMS, SAMPLERS, PARTICLES, SPORES, BACILLUS SUBTILIS, ELECTROSTATIC PRECIPITATION, OPTICAL SCANNING, TOXIC AGENT ALARMS, BIOLOGICAL WARFARE AGENTS, PASSIVE DEFENSE, DETECTORS, DATA PROCESSING, INPUT OUTPUT DEVICES, OSCILLOSCOPES, FLUID FILTERS, MEMBRANES, TEST METHODS, EYES, DETECTION)
IDENTIFIERS: FAST(FLUORESCENT ANTIBODY STAINING TECHNIQUE), PARTICULATE FILTERS (U)

THE PRIMARY OBJECTIVE OF THE WORK HAS BEEN TO DESIGN, FABRICATE, AND TEST FOUR FAST F.E.M. INSTRUMENTS, AND TO CONCURRENTLY PREPARE AND FURNISH POLYVALENT ANTISERA FOR THE DETECTION OF PATHOGENS IN AMBIENT ATMOSPHERE. THE F.E.M. INSTRUMENT WAS DESIGNED AND FABRICATED FOR THE PURPOSE OF EVALUATING THE FLUORESCENT ANTIBODY STAINING TECHNIQUE IN THE FIELD UNDER CONDITIONS NOT AVAILABLE IN THE LABORATORY. AS FURTHER OBJECTIVES, THE PARTICULAR EFFECT OF A SPECIFIC ENVIRONMENT APT TO BE ENCOUNTERED IN A FAST SYSTEM MAY BE EVALUATED, AND THE INITIAL PROBLEMS ASSOCIATED WITH THE OPERATION AND MAINTENANCE OF THIS AN SURVEILLANCE SYSTEM FROM A LOGISTICS STANDPOINT MAY BE ANALYZED. (U)

AD-774 906 4/13
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY (ENGLAND)

A COLLISON NEBULIZER GUN. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
DEC 73 7P MORRIS,E. J. ICLEMENT,G.
H. I
REPT. NO. MRE-TN-33

UNCLASSIFIED REPORT

DESCRIPTORS: *SPRAYERS, *BACTERIAL AEROSOLS, BACTERIA, EQUIPMENT, PERFORMANCE(ENGINEERING), GREAT BRITAIN (U)

THE COLLISON NEBULIZER GUN WAS DEVELOPED FOR USE IN THE SPOT TESTING OF FILTERS AND ENCLOSURES IN GENERAL WHERE THE REQUIREMENT IS FOR AN AEROSOL OF DRIED MONO-DISPERSED BACTERIAL PARTICLES WHICH CAN BE DIRECTED OVER A TARGET AREA. (U)

AD-A15 669 15/2 6/16
FORT DETRICK FREDERICK MD

DECAY OF SIMULATED AEROSOLS OF SERRATIA MARCESCENS ON MEMBRANE FILTER SUPPORTS. (U)

MAY 67 92P RATEMAN,JOHN A. I
REPT. NO. SMUFD-TECHNICAL MANUSCRIPT-382
PROJ: DA-1B522301A0A0

UNCLASSIFIED REPORT

DESCRIPTORS: (*BACTERIAL AEROSOLS, SURVIVAL(PERSONNEL)), SERRATIA MARCESCENS, TEST METHODS, VIABILITY, DEHYDRATION, ADDITIVES, AIR, TOXICITY, EQUILIBRIUM(PHYSIOLOGY), THERMODYNAMICS, MEMBRANES(BIOLOGY), ATMOSPHERES, FLUID FILTERS, SIMULATION (U)

THE TERM SIMULATED AEROSOLS MEANS BACTERIA DEPOSITED UPON MEMBRANE FILTERS AND EQUILIBRATED WITH AN AQUEOUS VAPOR ATMOSPHERE OF CONTROLLED WATER ACTIVITY. BY THIS SIMPLE MEANS THE DECAY OF VIABILITY CAN BE FOLLOWED AS A FUNCTION OF CHOSEN PARAMETERS. MUCH OF THE PAPER IS DEVOTED TO AN EXAMINATION, BY SEVERAL METHODS OF SUCH FACTORS AS THE RATE OF VAPOR PHASE EQUILIBRATION WITH MEMBRANE FILTER PREPARATIONS AND THE EFFECTS OF ATMOSPHERIC OXYGEN AND OF REDUCTION OF TOTAL AMBIENT PRESSURE. FOLLOWING THESE PRELIMINARIES, SYSTEMATIC STUDY OF THE LOSS OF VIABILITY OF WASHED SERRATIA MARCESCENS CELLS AT VARIOUS AMBIENT WATER ACTIVITIES HAS SHOWN THAT LOSS OF VIABILITY OCCURS QUITE SLOWLY AT WATER ACTIVITIES GREATER THAN 0.91 THEN IT RISES STEEPLY AS THE ACTIVITY APPROACHES ZERO. THE METHOD PERMITS THE EXAMINATION OF LONG-TERM DECAY CURVES; THESE PRESENT THE APPEARANCE OF SELF-LIMITING PROCESSES, RESULTING AFTER LONG EXPOSURES IN VERY SLOWLY DECREASING, OR POSSIBLY UNCHANGING, SURVIVING CELL POPULATIONS. THIS SELF-LIMITING CHARACTERISTIC IS EXPLAINED QUALITATIVELY IN TERMS OF A SET OF LETHAL INTERACTIONS INVOLVING REMOVAL OF WATER FROM SUSCEPTIBLE AREAS AND INTERACTION OF THESE AREAS WITH A REVERSIBLY OXIDIZABLE CELL COMPONENT. (U)

AD-A99 949 6/12
NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION IN NUMBER OF AIRBORNE BACTERIA BY AIR CLEANING DEVICES IN A CLOSED SPACE. (U)

JUN 69 13P SHREVE,W. B. ;WACHTEL,L. W. ;PELLEU,G. B. , JR.;
REPT. NO. NDS-TR-010
PROJ: .R005.19-6060

UNCLASSIFIED REPORT

DESCRIPTORS: (*BACTERIAL AEROSOLS, FLUID FILTERS), (*DENTISTRY, *BIOLOGICAL CONTAMINATION), BACILLUS SUBTILIS, SPORES, AIR, CLEANING, VENTILATION, EFFICIENCY, CONFINED ENVIRONMENTS, ELECTROSTATIC PRECIPITATION (U)

A NEED FOR REDUCING THE CONCENTRATION OF MICROORGANISMS IN THE AIR OF DENTAL OPERATORIES HAS BEEN ASSUMED. THE PURPOSE OF THIS STUDY WAS TO EVALUATE THE EFFECTIVENESS OF TWO METHODS OF AIR CLEANING IN REDUCING THE NUMBER OF AIRBORNE BACTERIA IN A CLOSED SPACE. TESTS FOR CLEARANCE OF BACILLUS SUBTILIS SPORES FROM STATIC AND DYNAMIC AEROSOLS WERE CONDUCTED IN A 700 CU FT EXPERIMENTAL ROOM. THE AIR CLEANING DEVICES WERE A PORTABLE ELECTRONIC AIR CLEANER WITH A CAPACITY OF 175 CFM (TESTED IN COMBINATIONS OF ONE, TWO, AND THREE) AND A HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER MODULE WITH A CAPACITY OF 800 CFM (TESTED SINGLY AND AS A PAIR). BOTH DEVICES CLEANED AND CIRCULATED ROOM AIR ONLY. THE TIME REQUIRED FOR COMPLETE CLEARANCE OF SPORES FROM A STATIC AEROSOL DECREASED AS AIR CAPACITY INCREASED, FROM AN AVERAGE OF 19 MINUTES AT 175 CFM TO 8 MINUTES AT 800 CFM. WITH FORCED VENTILATION AT 800 CFM, AN AVERAGE OF 5 MINUTES WAS REQUIRED. WHEN A DYNAMIC AEROSOL WAS DISSEMINATED OVER A 10-MINUTE PERIOD, SPORE CONCENTRATIONS PLATEAUED AFTER SEVERAL MINUTES, THE LEVEL DEPENDING ON THE RATE OF AIR FLOW THROUGH THE CLEANING DEVICES. CLEANING EFFICIENCY WAS MAXIMUM WHEN THE THEORETICAL TURNOVER OF ROOM AIR OCCURRED ONCE EVERY 1 1/2 TO 2 MINUTES. NO DIFFERENCE WAS OBSERVED BETWEEN THE EFFICIENCY OF THE ELECTRONIC AND HEPA DEVICES. FORCED VENTILATION AT 800 CFM PRODUCED RESULTS COMPARABLE TO THOSE OF HEPA FILTRATION AT THE SAME RATE. (AUTHOR) (U)

AD-710 372 6/5 6/13
NAVAL DENTAL SCHOOL BETHESDA MD

ELECTROSTATIC PRECIPITATION VS. HEPA FILTRATION IN REDUCTION OF AIRBORNE MICROORGANISMS IN DENTAL OPERATING ROOMS. (U)

MAY 70 10P PELLEU,G. B. , JR.;
WACHTEL,L. W. ;
REPT. NO. NDS-TR-019
PROJ: MR005.20

UNCLASSIFIED REPORT

DESCRIPTORS: (*DENTISTRY, BACTERIAL AEROSOLS), (*BACTERIAL AEROSOLS, *ELECTROSTATIC PRECIPITATION), BIOLOGICAL CONTAMINATION, AIR, SURGICAL SUPPLIES, CONTROL, MICROORGANISMS, AEROSOLS, VENTILATION, FLUID FILTERS (U)
IDENTIFIERS: *DENTAL OPERATING ROOMS (U)

THE PURPOSE OF THIS STUDY WAS TO MEASURE THE ABILITY OF ELECTROSTATIC PRECIPITATION (ESP) TO REDUCE THE NUMBER OF AIRBORNE MICROORGANISMS IN TWO DOR'S OF 1,800 AND 850 CU FT SIZE, AND TO COMPARE THE RESULTS WITH THOSE OBTAINED WITH A HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER MODULE. THE EFFECT OF AIR CLEANING BY EITHER ONE OR TWO ESP UNITS (AIR FLOW RATE OF 175 CFM EACH) OR A FLOOR MODEL HEPA MODULE (800 CFM) WAS STUDIED. THE EFFECTIVENESS OF THE UNITS WAS TESTED USING A REYNIERS SLIT SAMPLER TO MEASURE THE REDUCTION OF MICROBIAL AIR CONCENTRATIONS. THE REDUCTION IN NUMBER OF MICROORGANISMS IN THE AIR OF EMPTY DOR'S WAS FOUND TO BE INFLUENCE BY THE RATIO OF ROOM SIZE TO UNIT CAPACITY. AT A RATIO OF 2:1 THE AIR CLEANING EFFECTIVENESS OF THE ESP AND HEPA FILTER UNITS WAS THE SAME. A MEAN CONCENTRATION OF 5.0 VP/CU FT WAS SIGNIFICANTLY REDUCED TO 1.0 TO 2.0 VP/CU FT BY EITHER THE ESP OR THE HEPA FILTER UNITS. PEAK MICROBIAL AIR CONCENTRATIONS IN DOR'S WHERE DENTAL PROCEDURES WERE BEING PERFORMED WERE REDUCED BY AIR CLEANERS AT A HIGHER RATE THAN THAT FOUND WITH NO CLEANERS. (AUTHOR) (U)

AD-469 976 13/11 6/17
FORT DETRICK FREDERICK MD

AIR FILTRATION OF SUBMICRON VIRUS AEROSOLS. (U)

67 8P HARSTAD,J. BRUCE (DECKER, HERBERT H. (AUCHANAN,LEE H. (FILLER,MELVIN E. (

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF PUBLIC HEALTH. V57 N12 P2186-93 1967.
SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE ENGINEERING AND SANITATION SECTION OF THE AMERICAN PUBLIC ASSOCIATION ANNUAL MEETING (94TH) SAN FRANCISCO, CALIF., 1 NOV 1966.

DESCRIPTORS: (*AIR POLLUTION, *FLUID FILTERS), (*BACTERIAL AEROSOLS, FLUID FILTERS), VIRUSES, BACTERIOPHAGES, PERFORMANCE(ENGINEERING), GLASS TEXTILES, SANITARY ENGINEERING, ASBESTOS, PAPER, PUBLIC HEALTH, BACILLUS SUBTILIS (U)
IDENTIFIERS: PHTHALATE/DIOCTYL (U)

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON PARTICLES (0.1 MICRON MMD). TESTS WERE CONDUCTED TO COMPARE AIR FILTERS IN REMOVING SUBMICRON T1 PHAGE AEROSOLS AND BACTERIAL AEROSOLS OF BACILLUS SUBTILIS VAR NIGER SPORES (1 MICRON MMD). ARCHITECTS, ENGINEERS, AND RESEARCH INVESTIGATORS CONCERNED WITH THE CONTROL OF SUBMICRON PARTICLES MIGHT CONSIDER FILTRATION RATHER THAN OTHER METHODS OF AIR CLEANING. (AUTHOR) (U)

AD-469 101 6/5
NAVAL DENTAL SCHOOL BETHESDA MD

EFFECT ON AIRBORNE BACTERIA OF EXTRANEOUS PARTICULATE MATTER OR AIR FILTRATION. (U)

JAN 69 12P SHREVE,W. B. (PELLEU,G. B. ; JR.(WACHTEL,L. W. (
REPT. NO. NDS-TR-007
PROJ: MROOS.19-6050

UNCLASSIFIED REPORT

DESCRIPTORS: (*DENTISTRY, *BACTERIAL AEROSOLS), AIRBORNE, BACILLUS SUBTILIS, SPORES, INFECTIONS, SAMPLERS, GAS FILTERS, MEASUREMENT, PARTICLES (U)
IDENTIFIERS: FILTRATION, HEPA FILTERS (U)

DISSEMINATION OF MICROORGANISM-BEARING AEROSOLS IN DENTAL OPERATORIES HAS RAISED QUESTIONS ABOUT POTENTIAL RISKS OF AIRBORNE INFECTION. THE PURPOSE OF THIS STUDY WAS TO EVALUATE METHODS OF REDUCING MICROBIAL CONCENTRATIONS IN SUCH AEROSOLS. MEASUREMENTS WERE MADE OF THE INFLUENCE OF PARTICULATE MATTER ON AIRBORNE BACTERIA AND THE EFFECTIVENESS OF AN 800-CFM HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER UNIT IN REDUCING AIRBORNE BACTERIA. A ROOM, APPROXIMATELY 700 FT3 IN SIZE, WAS CONSTRUCTED OF PLASTIC MATERIAL, AND WAS KEPT SEALED EXCEPT FOR AN INTAKE OF DUST-FREE, BACTERIA-FREE AIR. THE FALLOUT RATE OF BACILLUS SUBTILIS SPORES WAS DETERMINED IN A DUST-FREE ENVIRONMENT AND ALSO IN THE PRESENCE OF KNOWN AMOUNTS OF AIRBORNE PARTICULATE MATTER: 3.0 TO 15.0 GM OF CA3(PO4)2 POWDER, OR 0.3- OR 1.0-GM OF HAIR SPRAY. THE FALLOUT RATE OF THE SPORES (32 PERCENT PER HOUR) WAS FOUND TO INCREASE WITH THE ADDITION OF EITHER FORM OF PARTICULATE MATTER, RESULTING IN A MAXIMUM 2-FOLD INCREASE WITH 5 GM OF POWDER, AND A 1.4-FOLD INCREASE WITH 1 GM OF SPRAY. THE HEPA FILTER UNIT WAS EFFECTIVE IN REDUCING PEAK CONCENTRATIONS OF AIRBORNE BACTERIA BY 35 PERCENT, AND IN CLEARING THE ROOM OF ALL AIRBORNE SPORES IN 8-10 MINUTES. (AUTHOR) (U)

AD-690 720 13/11 16/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL AEROSOLS AND BACTERIAL AEROSOLS. (U)

MAY 68 11P HARSTAD,J. BRUCE IFILLER, MELVIN E. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL HYGIENE ASSOCIATION JNL., V30 P280-290 MAY-JUN 69.

DESCRIPTORS: (•AEROSOLS, GAS FILTERS), (•GAS FILTERS, PERFORMANCE(ENGINEERING)), MICROORGANISMS, AEROSOLS, VELOCITY, PARTICLE SIZE, HUMIDITY, VIRUSES, BACTERIA (U)
IDENTIFIERS: •BIOLOGICAL AEROSOLS, •FLUID FILTERS, •PAPER (U)

VELOCITY, AEROSOL PARTICLE SIZE, AEROSOL CHARGE, AND EXPOSURE TO HIGH HUMIDITY WERE FOUND TO AFFECT THE PERFORMANCE OF AIR FILTERS FOR MICROBIAL AEROSOLS. FILTERS WERE EVALUATED WITH SUBMICRON T1 BACTERIOPHAGE AEROSOLS HAVING A NUMBER MEDIAN DIAMETER (NMD) OF 0.12-MICRON AND WITH AEROSOLS OF BACILLUS SUBTILIS VAR NIGER SPORES WITH A NMD OF 1-MICRON. THE FILTERS INCLUDED ULTRA-HIGH-EFFICIENCY FILTER PAPERS AND DOP SCAN-TESTED FILTER UNITS FABRICATED FROM THESE FILTER PAPERS. (AUTHOR) (U)

185

AD-853 343 11/6 13/11 7/4
LITTLE (ARTHUR D) INC CAMBRIDGE MASS

DEVELOPMENT OF IMPROVED C-18 GAS/AEROSOL FILTER MEDIA. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 3, 29 DEC 68-23 MAR 69,
APR 69 52P BENSON,ARTHUR L. IBYRUM, JOHN F. ISMITH,WALTER J. I
REPT. NO. ADL-C-70528-3
CONTRACT: DAAA15-68-C-0719
PROJ: DA-1-B-662706-A-096
TASK: 1-B-662706-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.
SUPPLEMENTARY NOTE: SEE ALSO QUARTERLY PROGRESS REPT. NO. 2, AD-849 631.

DESCRIPTORS: (•GAS FILTERS, •SURFACE ACTIVE SUBSTANCES), (•SYNTHETIC FIBERS, GAS FILTERS), AEROSOLS, GLASS TEXTILES, HALOGENATED HYDROCARBONS, FLUORINE COMPOUNDS, SILANES, PHOSPHATES, COST EFFECTIVENESS, POROSITY, ASBESTOS, ELECTRON MICROSCOPY, POLYVINYL CHLORIDE (U)
IDENTIFIERS: PROTECTION, FLUORINE ORGANIC COMPOUNDS, SILANE/METHYLTRICHLORO (U)

THE PURPOSE OF THIS STUDY IS TO IMPROVE PERFORMANCE AND REDUCE COST OF THE C-18 GAS/AEROSOL FILTER. DURING THIS REPORT PERIOD, SEVERAL ASPECTS OF THE BACKING MATERIAL WERE STUDIED IN THE LABORATORY. BOTH WATER AND ORGANIC LIQUID REPELLENCY HAVE BEEN ACHIEVED THROUGH THE APPLICATION OF ABOUT 1% OF ONE OF SEVERAL FLUOROCHEMICALS TO THE BACKING MATERIAL. THE FILTRATION QUALITY OF BACKING MATERIAL DECREASES AS DOP AEROSOL IS COLLECTED. THE RATE OF DECREASE VARIES WITH FILTER COMPOSITION. EVIDENCE THAT FILTER POROSITY CAN AND SHOULD BE CONTROLLED AS A MEANS OF SIGNIFICANTLY IMPROVING FILTRATION QUALITY IS PRESENTED. SCANNING ELECTRON MICROSCOPE AND OPTICAL MICROSCOPE STUDIES SUGGEST THAT THE GLASS MICROFIBERS PURCHASED FOR OUR LABORATORY STUDIES ARE NOT AS SMALL AS REPORTED. ALSO, IN ONE ROLL OF C-18 BACKING MATERIAL OBTAINED FROM EDGEWOOD ARSENAL, THE DISTRIBUTION OF MICROFIBERS APPEARS NONUNIFORM. (AUTHOR) (U)

AD-600 292
NAVAL RESEARCH LAB WASHINGTON D C

CHARACTERISTICS OF AIR FILTER MEDIA USED FOR MONITORING AIRBORNE RADIOACTIVITY. (U)

MAR 64 19P LOCKHART,L. B. ;JR.;PATTERSON, R. L. ;JR.;ANDERSON,W. L. ;
REPT. NO. NRL-6059

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION MONITORS, DESIGN), (*GAS FILTERS, AIR), (*AIR POLLUTION, MONITORS), (*RADIOACTIVITY, AIRBORNE), AEROSOLS, FISSION PRODUCTS, NATURAL RADIOACTIVITY, PHTHALATES, CELLULOSE, ASBESTOS, TENSILE PROPERTIES, THICKNESS, DENSITY, ABSORPTION (U)

A COMPARISON WAS MADE OF THE MORE IMPORTANT CHARACTERISTICS OF THE AVAILABLE FILTER MATERIALS WHICH ARE CURRENTLY IN USE BY VARIOUS SYSTEMS FOR MONITORING AIRBORNE RADIOACTIVITY THROUGHOUT THE WORLD, MOST OF THE MATERIALS DESCRIBED ARE COMMERCIALLY AVAILABLE; THE INFORMATION HEREIN IS PRESENTED WITH THE HOPE THAT IT WILL BE OF USE TO THOSE WHOSE PROGRAMS INVOLVE THE EMPLOYMENT OF AIR-FILTER MEDIA OR WHO REQUIRE SUCH INFORMATION FOR THE DESIGN OF AIR-FILTER SYSTEMS. THE FILTER CHARACTERISTICS MEASURED ARE SUCH PHYSICAL PROPERTIES AS TENSILE STRENGTH, THICKNESS, DENSITY, ASH CONTENT, RETENTIVITY TOWARD 0.3 MICRON DIOCTYL PHTHALATE (DOP) AEROSOL PARTICLES AS A FUNCTION OF AIR VELOCITY, RETENTIVITY TOWARD AIRBORNE FISSION PRODUCTS AND NATURAL RADIOACTIVE AEROSOLS (RADON DAUGHTERS) AT SEVERAL AIR VELOCITIES, FLOW RATE AS A FUNCTION OF PRESSURE DROP ACROSS THE FILTER, AND THE RELATIVE RATES OF CLOGGING BY ATMOSPHERIC DUST. THE OBSERVATION OF A RAPID CHANGE IN FLOW WITH DUST LOADING OF SOME OF THE FILTER MEDIA SUGGESTS THE SYSTEMATIC STUDY OF SUCH CHANGES AS POSSIBLY A SIMPLE PROCEDURE FOR MONITORING THE DUST CONTENT OF THE ATMOSPHERE. (AUTHOR) (U)

AD- 860 993L 13/2
AMERICAN CYANAMID CO STAMFORD CONN CENTRAL RESEARCH DIV

FEASIBILITY STUDIES ON AN ELECTRICALLY ENHANCED CATALYTIC AIR PURIFIER. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 3, JAN-MAR 69,
JUN 69 21P SEDLAK,JOHN A. ;
CONTRACT: DAAA15-68-C-0440
PROJ: DA-1-B-662706-A-095
TASK: 1-B-662706-A-09503

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AIR POLLUTION, PURIFICATION), ANODES(ELECTROLYTIC CELL), CATHODES(ELECTROLYTIC CELL), ADSORPTION, SOLUTIONS(MIXTURES), HYDROLYSIS, OXIDATION, REMOVAL, CATALYSTS, CATALYSIS, CHEMICAL CONTAMINATION, PHOSPHONIC ACIDS, SULFIDES (U)
IDENTIFIERS: CATALYTIC AIR PURIFIER, CYANOGEN CHLORIDE, DIMP(PHOSPHONATE/DIISOPROPYLMETHYL, PHOSPHONATE/DIISOPROPYLMETHYL, SULFIDE/BETA-CHLOROETHYL, TRIETHYLAMINE (U)

CYANAMID'S AIR PURIFIER WAS APPLIED TO THE DESTRUCTION OF DIMP (DIISOPROPYL METHYL PHOSPHONATE) IN CONTAMINATED AIR STREAMS. EXTENSIVE AMOUNTS OF DIMP WERE REMOVED AT BOTH ANODE AND CATHODE, THE AMOUNTS OVER THE SHORT RUN BEING INDEPENDENT OF THE PASSAGE OF ELECTRIC CURRENT. THESE RESULTS INDICATED THAT THE RATE-DETERMINING STEP FOR DIMP REMOVAL IS INDEPENDENT OF OXIDATION AND IS ONE OF THE FOLLOWING PROCESSES: ADSORPTION ON THE ELECTRODE SURFACES, DISSOLUTION IN THE ELECTROLYTE, OR HYDROLYSIS BY THE ELECTROLYTE. HYDROLYSIS WAS SHOWN TO OCCUR AT BOTH ANODE AND CATHODE BY THE PRESENCE OF PROPYLENE IN THE ELECTRODE EFFLUENTS. LONG-TERM RUNS UTILIZED OXIDATION TO CONVERT CARBON TO ACETONE AND CARBON DIOXIDE, THUS REMOVING TRAPPED MATERIAL AND INCREASING THE CAPACITY OF THE CELL FOR CONTAMINANT REMOVAL. REMOVAL OF DIMP AT THE ANODE AT A CONCENTRATION OF APPROXIMATELY 900 MICROGRAMS/L RANGED FROM 93% AT A FLOW RATE OF 255 ML/MIN TO 60% AT 800 ML/MIN; EXTRAPOLATION OF THE DATE INDICATES THAT REMOVAL TO BELOW THE LIMITS OF OUR VAPOR PHASE CHROMATOGRAPHIC ANALYSIS COULD BE ACHIEVED AT 100-150 ML/MIN.

The Kinetics of Adsorption of Organo-Phosphorus Vapors from air Mixtures by Activited Carbons, L. A. Jonas, J. A. Rehrmann, Chemical Lab., Edgewood Arsenal, Maryland, Reprint- Carbon, Vol. 10, pp. 657-663, Pergamon Press, Printed in Great Britain, 1972

Aerosol Filtration by Fibrous Filter Mats, Leonard A. Jonas, Carlye M. Lochboehler, William S. Magee, Jr., Chemical Lab., Edgewood Arsenal, Maryland, Reprinted from Environmental Science and Technology, Vol. 6, No. 9, pp. 821-826, Sep 1972

Filter Efficiency as a Function of Particle Size and Velocity, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ. of Calif., Los ALamos, N. M., Atmospheric Environment Vol 6, pp. 353-362, Pergamon Press, 1972

Respirator Cartridge Filter Efficiency Under Cyclic- and Steady-Flow Conditions, Ronald G. Stafford, Harry J. Ettinger, Thomas J. Rowland, Los Alamos Scientific Lab., Univ, of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, May 1973

Performance of Multiple HEPA Filters Against Plutonium Aerosols for Period Jan 1 through Jun 30, 1973, Harry J. Ettinger, John C. Elder, Manuel Gonzales, Los Alamos Scientific Lab., Univ. Of Calif., Los Alamos, N. M., LA-5349-PR Progress Rpt UC-41, Jul 1973

Comparison of Filter Media Against Liquid and Solid Aerosols, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, Vol 32, May 1971

Efficiency of IPC-1478 Filter Paper Against Polystyrene Latex and Dioctyl Phthalate Aerosols, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ, of Calif., Los Alamos, New Mexico, Reprinted from American Industrial Hygiene Association Journal, Vol. 32, No. 8, Aug 1971

"Elemental Analysis of Air Filter Samples Using X-Ray Fluorescence" by Bonner, N. A., et al, Lawrence Livermore Laboratory, Report UCRL 51388, 1 June 1973.

Synopsis: This report examines a silicone lithium detector and computer used for the analysis of air filter samples. The system is capable of making measurements on all elements heavier than phosphorus in a qualitative way and in a quantitative way on all elements heavier than potassium. The three sigma detection limits range from 10 to 100 nanograms per square centimeter. Methods described required no sample preparation and are nondestructive. Quantitative information from such a system as described in this report can be useful in monitoring trace element concentrations in the air.

"Investigation of the Effectiveness of Cyclone Separators on Fluidic Power Supplies, Final Report," Westerman, W. J., Jr., McDonnell Douglas Astronautics Company, Titusville, Florida, McDONNELL-L-0243, Contract DAAG-39-73-C-0100, December 1973.

"Fixed and Fluidized Beds: An Introduction," Pallay, Barry G., Naval Ordnance Laboratory, NOLTR 73-54, December 1973.

CONTROL

Sampling

AD-901 602L 13/2
PICATINNY ARSENAL DOVER N J

GUIDE TO INSTRUMENTATION FOR MEASUREMENT AND CONTROL OF AIR AND WATER POLLUTANTS. REVISION 1. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 72 37P ROTH,MILTON I
REPT. NO. PA-TR-4380
PROJ: DA-54114

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 21 JUL 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, ARMY MUNITIONS COMMAND, ATTN: AMSMU-MT, DOVER, N. J. 07801.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 3 SEP 71.

DESCRIPTORS: (*SAMPLERS, WASTES(INDUSTRIAL)), (*WASTES(INDUSTRIAL), MUNITIONS INDUSTRY), (*WATER POLLUTION, MEASUREMENT), (*AIR POLLUTION, MEASUREMENT), RDX, HMX, INSTRUMENTATION, TNT, MANUFACTURING, FILLING, TEMPERATURE, DISCOLORATION, MONITORS, OXIDIZERS, CARBON MONOXIDE, SULFUR COMPOUNDS, NITROGEN OXIDES, HYDROCARBONS, PARTICLES, IONS, COSTS, SOURCES, STANDARDS (U)
IDENTIFIERS: SULFUR DIOXID, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

RECOMMENDATIONS ARE GIVEN FOR APPLICATION OF COMMERCIALLY AVAILABLE INSTRUMENTATION THAT WILL BE GENERALLY SUITABLE FOR MONITORING AND/OR CONTROLLING AIR AND WATER POLLUTANTS GENERATED DURING THE MANUFACTURE AND LOADING OF AMMUNITION AT GOCO PLANTS. GENERAL REMARKS ARE INCLUDED ON CRITERIA FOR ASSOCIATED SAMPLING SYSTEMS. (AUTHOR) (U)

AD-716 999 4/1 13/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

SULFATES AND OTHER WATER SOLUBLES LARGER THAN 0.15 MICRONS RADIUS IN A CONTINENTAL NONURBAN ATMOSPHERE. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
OCT 70 38P RINEHART,GAYLE S. I
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-20
MONITOR: ECOM 5336

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *SULFATES), (*HAZE, SULFATES), (*ATMOSPHERIC CONDENSATION, SULFATES), AEROSOLS, PARTICLE SIZE, PARTICLES, SAMPLERS, MICROSCOPY, TEST METHODS (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, IMPACTORS, CONDENSATION NUCLEI (U)

NUMBER CONCENTRATIONS OF LARGE AND GIANT ATMOSPHERIC PARTICLES AND PARTICLES CONTAINING SULFATE AND WATER-SOLUBLE CONSTITUENTS WERE DETERMINED. PARTICLES WERE COLLECTED BY MEANS OF AN ANDERSEN MULTISTAGE IMPACTOR AND EXAMINED BY MEANS OF AN OPTICAL MICROSCOPE. THE NUMBER OF PARTICLES COLLECTED AND CONCENTRATION OF SULFATE AND WATER-SOLUBLE PARTICLES AT THE ISOLATED NEW MEXICO SAMPLING SITE WERE COMPARABLE TO LITERATURE-CITED VALUES OF AVERAGE CONTINENTAL CONCENTRATIONS OVER MOUNTAINS OR UNPOLLUTED AREAS. THE NUMBER CONCENTRATIONS OF GIANT AND LARGE PARTICLES DID NOT APPEAR TO BE INFLUENCED IN THE SAME WAY BY METEOROLOGICAL PARAMETERS. INCREASES IN THE NUMBER OF LARGE PARTICLES WERE MIRRORED BY CORRESPONDING INCREASES IN SULFATE CONTENT. DATA FOR RELATING ANDERSEN SAMPLER AEROSOL NUMBER CONCENTRATIONS TO CONCENTRATIONS REFLECTED BY THE ROYCO 202 LIGHT SCATTERING AEROSOL COUNTER ARE GIVEN. (AUTHOR) (U)

AD-722 744 14/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME I. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.
MAR 71 72P
REPT. NO. DDC-TAS-70-86-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 261.

DESCRIPTORS: (*GAS DETECTORS, *BIBLIOGRAPHIES), ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION, CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS DETECTORS COMPILED FROM THE DEFENSE DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS, ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

191

AD-902 505 13/2 6/6
DEFENCE STANDARDS LABS MARIBYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL SAMPLER. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
JAN 72 15P THOMSON.G. H. I
REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*ELECTROSTATIC PRECIPITATION, *SAMPLERS), AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES, VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY, COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT, SAMPLING, CONCENTRATION(CHEMISTRY), CONTROL, WASTES(INDUSTRIAL), AUSTRALIA, WASTE GASES (U)
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS (U)

THE EFFICIENCY OF AN HSA ELECTROSTATIC ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW RATE, APPLIED VOLTAGE, PARTICLE SIZE AND CONCENTRATION OF PARTICULATE MATTER. THE CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY DIFFERENT FROM THEORETICAL PREDICTIONS.
(AUTHOR) (U)

AD-727 521 19/2 7/4
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

THE AUTOMATED GAS CHROMATOGRAPH AS AN AIR POLLUTANT MONITOR. (U)

DEC 70 11P STEVENS,ROBERT K. I
REPT. NO. AMRL-TR-70-102-PAPER-17

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT ANNUAL CONFERENCE ON ENVIRONMENTAL TOXICOLOGY (1ST), FAIRBORN, OHIO, 9-11 SEP 70, SPONSORED BY SYSTEMED CORP., DAYTON, OHIO.

DESCRIPTORS: (•AIR POLLUTION, •GAS CHROMATOGRAPHY), (•GAS DETECTORS, AIR POLLUTION), AUTOMATIC, CARBON DIOXIDE, METHANE, SULFUR COMPOUNDS, MONITORS (U)
IDENTIFIERS: •AIR POLLUTION DETECTION, HYDROGEN SULFIDE, SULFUR DIOXID, JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL AMMUNITION DISPOSAL) (U)

GAS CHROMATOGRAPHY HAS BEEN USED EXTENSIVELY OVER THE PAST 10 YEARS TO MEASURE ATMOSPHERIC CONCENTRATIONS OF A VARIETY OF AIR POLLUTANTS. HOWEVER, ONLY RECENTLY HAS THE GAS CHROMATOGRAPH BEEN THOUGHT OF AS AN ANALYTICAL SYSTEM WHICH COULD SERVE FAITHFULLY AS A ROUTINE AIR POLLUTION MONITOR. IT HAS BEEN DEMONSTRATED THAT AN AUTOMATED GAS CHROMATOGRAPH COULD BE USED TO MEASURE AMBIENT AS WELL AS SOURCE CONCENTRATIONS OF CARBON MONOXIDE, METHANE, SULFUR DIOXIDE AND HYDROGEN SULFIDE. THE PAPER PRESENTS DETAILS OF THESE ANALYTICAL DEVELOPMENTS AND DISCUSS THEIR ROLE IN FUTURE MONITORING PROGRAMS. (AUTHOR) (U)

192

AD-726 795 13/2 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RAPID METHODS FOR THE DETERMINATION OF NOXIOUS SUBSTANCES IN THE AIR. (U)

APR 71 107P PEREGUD,E. A. (GERNET,E. V. (BYKHOVSKAYA,M. S. I
REPT. NO. FTD-MC-23-1401-68
PROJ: FTD-60403

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. BYSTRYE METODY OPREDELENIYA VREDNYKH VESHCHESTV V VOZDUKHE, M.P., 1962 P9-10, 17-41, 47-59, 62-70, 80-97, 182-186, 253-259.

DESCRIPTORS: (•AIR POLLUTION, MEASUREMENT), (•INDUSTRIAL MEDICINE, AIR POLLUTION), SAMPLING, MONITORS, PERSONNEL, INDUSTRIAL PLANTS, PUBLIC HEALTH, CHEMICAL ANALYSIS, GASES (U)
IDENTIFIERS: TRANSLATIONS (U)

THE BOOK IS DEVOTED TO THE DESCRIPTION OF RAPID METHODS OF DETERMINING A LARGE NUMBER OF SUBSTANCES ENCOUNTERED IN THE AIR, WHICH HAVE A TOXIC EFFECT UPON THE HUMAN ORGANISM. THE FIRST PART DESCRIBES THE SAMPLING METHTOXICDS AND THE SPECIAL EQUIPMENT USED IN RAPID METHODS OF DETERMINING TOXIC SUBSTANCES IN THE AIR. SPECIAL ATTENTION IS DEVOTED TO THE QUESTION OF MEASURING OUT THE GASES AND METHODS OF PREPARING MIXTURES OF O SUBSTANCES WITH AIR. THE SECOND PART IS DEVOTED TO A DESCRIPTION OF METHODS OF DETERMINING THE TOXIC SUBSTANCES MOST FREQUENTLY ENCOUNTERED IN THE AIR. (AUTHOR) (U)

AD-912 586L 15/2 6/6 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GROUND MD

ASSESSING AMBIENT AIR QUALITY WITH MOBILE SAMPLING UNIT, ROCKY MOUNTAIN ARSENAL, DENVER, COLORADO: 29 JANUARY - 15 FEBRUARY, 19 MARCH - 2 APRIL 1973. (U)

DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC STUDY,
AUG 73 34P REGAN,GERALD F. I
REPT. NO. USAEHA-EA-21-16-72/74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JUL 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY MATERIEL COMMAND, ATTN: AMCHH, ALEXANDR A, VA. 22304.

DESCRIPTORS: (*AIR POLLUTION, SAMPLING); (*MUSTARD AGENTS, DISPOSAL); CONCENTRATION(CHEMISTRY); MUSTARD AGENTS, DISPOSAL; SULFUR COMPOUNDS, DIOXIDES, HYDROCHLORIC ACID, IRON OXIDES, HYDROCARBONS, CARBON MONOXIDE, NITROGEN OXIDES, PARTICLES, PARTICLE SIZE, OXIDATION, DISTRIBUTION, BACKGROUND, INCINERATORS, STATISTICAL ANALYSIS, COLORADO, WIND, WARNING SYSTEMS, SAMPLERS, GAS DETECTORS, GAS ANALYSIS, GAS FILTERS, TEST METHODS (U)
IDENTIFIERS: H AGENTS, HD AGENTS, ROCKY MOUNTAIN ARSENAL, STACK GASES (U)

AN ATMOSPHERIC SAMPLING STUDY WAS CONDUCTED AT ROCKY MOUNTAIN ARSENAL, DENVER, CO, UTILIZING A MOBILE SAMPLING UNIT. THE PURPOSE OF THE STUDY WAS TO SAMPLE BETWEEN THE FIXED STATIONS LOCATED AT THE ARSENAL BOUNDARY AND WITHIN THE BOUNDARY TO DETERMINE THE INCIDENCE AND CONCENTRATION OF POSSIBLE AIR POLLUTANTS RESULTING FROM THE MUSTARD DEMILITARIZATION. THE ADEQUACY OF THE NINE STATION AMBIENT NETWORK WAS TO BE EVALUATED IN ITS USE TO DESCRIBE THE AIR QUALITY AT THE BOUNDARY. STATISTICAL TECHNIQUES WERE ADAPTED FOR USE AS TOOLS IN MAKING THIS EVALUATION. SAMPLING WAS ACCOMPLISHED FOR THE FOLLOWING POLLUTANTS ASSOCIATED WITH THE DEMILITARIZATION, SULFUR DIOXIDE (SO2), NITROGEN DIOXIDE (NO2), ACID MIST (AS HCL), SUSPENDED PARTICULATES, MUSTARD AND IRON OXIDE. IN ADDITION, REACTIVE HYDROCARBONS (HC), CARBON MONOXIDE (CO) AND OXIDANTS (O3) WERE SAMPLED.

AD-909 957L 7/9 20/3 15/7
EDGEWOOD ARSENAL MD

IMPACTION EFFICIENCY OF CYLINDRICAL COLLECTORS IN LAMINAR AND TURBULENT FLUID FLOW. PART III. EXPERIMENTAL. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 71-JUN 72,
MAR 73 96P STUEMPFLE,ARTHUR N. I
REPT. NO. EA-TR-4732
PROJ: DA-1-W-062114-A-084
TASK: 1-W-062114-A-08402

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*SAMPLERS, *AEROSOLS), LAMINAR FLOW, COLLECTING METHODS, SAMPLING, PARTICLE SIZE, IMPACT, DISTRIBUTION, THEORY, EQUATIONS OF MOTION, MATHEMATICAL PREDICTION, TURBULENCE, GAS FLOW, CYLINDRICAL BODIES, GAS DETECTORS, DROPS, PARTICLES, AIR POLLUTION, AERODYNAMIC CHARACTERISTICS, WIND TUNNELS, AEROBIOLOGY, EFFICIENCY (U)

THE COLLECTION EFFICIENCIES OF PAPER-COATED GLASS CYLINDERS AT LOW VALUES OF THE PARTICLE INERTIAL PARAMETER RELEVANT TO CHEMICAL OPERATIONS WERE DETERMINED IN A WIND TUNNEL UNDER LAMINAR AND CONTROLLED TURBULENT FLOW CONDITIONS. IMPACTION EFFICIENCIES COMPUTED BY THE INERTIAL IMPACTION THEORY FOR INERTIAL PARAMETERS APPROACHING THE THEORETICAL CUTOFF VALUE ACCURATELY PREDICT THE COLLECTION EFFICIENCY OF CYLINDERS UNDER LAMINAR FLOW CONDITIONS AND LEVELS OF TURBULENCE LESS THAN 7.4%. MANYFOLD INCREASES IN THE COLLECTION EFFICIENCY OF CYLINDERS AT LOW INERTIAL PARAMETER VALUES WERE OBSERVED AS A FUNCTION OF RELATIVE TURBULENCE INTENSITY AND EULERIAN LONGITUDINAL MACROSCALE OF THE TURBULENT FLOW FIELD. THE COLLECTION EFFICIENCY DATA FOR CYLINDERS CAN BE PROPERLY ORDERED BY THE TAYLOR PARAMETER. THE LEEWARD DEPOSITION EFFICIENCY WAS SUBSTANTIAL AND EXCEEDED THE WINDWARD COLLECTION EFFICIENCY FOR MOST FLOW CIRCUMSTANCES. (AUTHOR) (U)

AD-921 316L 13/2 19/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

EFFECTS OF THE SAMPLING TUBE ON AEROSOL CONCENTRATION (DOKAN NO EAROZORU NODO NI OYOBOSU FIKYO). (U)

AUG 73 3P KOSHI,SHIGEHARU IHOMMA, KATSUNORI I
REPT. NO. FSTC-HT-23-1669-73

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 1 OCT 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF JOURNAL OF JAPAN SOCIETY OF AIR POLLUTION V4 N1 P35 1969.

DESCRIPTORS: (*TUBES, *SAMPLERS), (*SAMPLERS, *AEROSOLS), (*AEROSOLS, SAMPLING), AIR POLLUTION, MEASUREMENT, AIR, VINYL PLASTICS, CONCENTRATION(CHEMISTRY), FLOW RATE, JAPAN, TRANSLATIONS (U)

AEROSOL CONCENTRATION IS MEASURED BY MEANS OF A SAMPLING TUBE. METHODS AND RESULTS ARE DESCRIBED AND GRAPHICALLY ILLUSTRATED. (AUTHOR) (U)

AD-919 494 13/2 6/6 15/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

EVALUATION OF THE DRES-MODIFIED LARGE VOLUME AIR SAMPLER (CYCLONE SCRUBBER) FOR THE COLLECTION OF AIRBORNE BACTERIAL CELLS. (U)

DEC 73 19P WHITE,L. A. (HARLEY,D. J. (DAVIDS,D. E.)
REPT. NO. DRES-TECHNICAL PAPER-913

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*SAMPLERS, *SCRUBBERS), (*AIR POLLUTION, SAMPLERS), BACTERIA, AIR, PARTICLES, SPORES, AIRBORNE, CONCENTRATION(COMPOSITION), BACILLUS SUBTILIS, SERRATIA MARCESCENS, ESCHERICHIA COLI, AEROBACTER AEROGENES, COLLECTING METHODS, CULTURE MEDIA, PARTICULATES, GAS DETECTORS, VOLUME, BACTERIAL AEROSOLS, PARTICLE SIZE, WIND TUNNEL TESTS, VIABILITY, HUMIDITY, TEMPERATURE, EFFICIENCY, AEROBIOLOGY (U)
IDENTIFIERS: *CYCLONE SCRUBBERS, *LARGE VOLUME AIR SAMPLERS, COLLECTION FLUIDS, AGI-30 SAMPLERS, MASS MEDIAN DIAMETER, TRYPTICASE SOY AGAR, TWEEN 80 (U)

THE DRES-MODIFIED LARGE VOLUME AIR SAMPLER HAS BEEN DEMONSTRATED TO BE AN EXTREMELY EFFICIENT DEVICE FOR THE COLLECTION OF AIRBORNE BACTERIAL PARTICLES, BOTH OF SPORES AND OF VEGETATIVE CELLS, PROVIDED THAT A COMPATIBLE COLLECTION FLUID IS EMPLOYED. THE SAMPLER CONCENTRATES THE PARTICLES IN 950 LITRES OF AIR INTO A FLOW OF BETWEEN 1 AND 2 ML OF COLLECTING FLUID PER MINUTE. SPORES OF B. SUBTILIS VAR NIGER ARE COLLECTED AT AN EFFICIENCY OF ABOUT 82% COMPARED TO THE COLLECTION IN THE STANDARD SAMPLER, THE AGI-30. IN THE MOST DESIRABLE COLLECTING FLUIDS TESTED, AEROSOLIZED CELLS OF S. MARCESCENS, E. COLI AND A. AEROGENES ARE COLLECTED AT COMPARATIVE EFFICIENCIES OF APPROXIMATELY 90, 80 AND 90 PER CENT, RESPECTIVELY. (AUTHOR) (U)

AD-742 517 7/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

EVALUATION OF MERCURY VAPOR DETECTION METHODS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 68 8P DIAMOND,PHILIP I
RLPT. NO. EHL-M-68M-27
PROJ: EHL-F68-12

UNCLASSIFIED REPORT

DESCRIPTORS: (*MERCURY, *GAS DETECTORS); AIR POLLUTION, CALIBRATION (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

A PROJECT WAS INITIATED TO CALIBRATE THE GENERAL ELECTRIC INSTANTANEOUS MERCURY VAPOR DETECTOR. THE DETECTOR WAS SATISFACTORILY CALIBRATED USING THE SAMPLING AND GENERATING PROCEDURE RECOMMENDED BY NELSON, ET AL. (U)
(AUTHOR)

195

AD-922 029L 6/6 13/2 9/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

DETECTING AEROBIC BACTERIA ORIGINATING FROM A DISTANT SOURCE OF DIFFUSION. (U)

JAN 74 12P BENGT,AUCHT IRVEGREN,BO I
HALLIN,THOMAS I
REPT. NO. FSTC-HT-23-0549-74

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO; 1 OCT 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM FOA 1 RAPPORT A 1530-34 P1-17 JUN 71.

DESCRIPTORS: (*BACTERIAL AEROSOLS, AIR POLLUTION), BACTERIA, SOILS, TRANSPORTATION, RANGE(DISTANCE), SAMPLING, CULTURE MEDIA, CULTURES(BIOLOGY), METEOROLOGICAL PHENOMENA, TRAJECTORIES, AIR FLOW, DRIFT, SNOW, COLORING, AIR QUALITY, DIFFUSION, SCATTERING, DISTRIBUTION, BACILLUS, SPORES, CLASSIFICATION, SWEDEN, TRANSLATIONS, DETECTION, SAMPLERS (U)

THE RESEARCH INSTITUTE OF THE SWEDISH ARMED FORCES (FOA) HAS CONDUCTED STUDIES ON AIRBORNE BACTERIA ORIGINATING FROM DISTANT SOURCES OF DIFFUSION, AND HERE WE HAVE THE FIRST REPORT OF RESULTS. DATA HAS BEEN PROVIDED OF ALL SAMPLINGS AND ANALYSIS AS WELL AS RESULTS. THE END PART OF THE REPORT INCLUDES A DISCUSSION ON THE SUBJECT AND BIBLIOGRAPHY. (AUTHOR) (U)

AD-752 525 7/3 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

REVIEW OF VARIOUS AIR SAMPLING METHODS FOR SOLVENT VAPORS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 17P HAYES,ROBERT T. ;JACKS, CHARLES I
REPT. NO. EHL-M-70M-9
PROJ: EHL-67M-96

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *ORGANIC SOLVENTS); (*GAS ANALYSIS, ORGANIC SOLVENTS); COLLECTING METHODS; INDUSTRIAL MEDICINE, ETHYLENES, HALOGENATED HYDROCARBONS, TOLUENES, KETONES, ALCOHOLS, STORAGE, SAMPLING (U)
IDENTIFIERS: METHYL ETHYL KETONE, *AIR POLLUTION DETECTION, CELLOSOLVE COMPOUNDS, *GAS SAMPLING, INDOOR AIR POLLUTION, TEDLAR PLASTICS, ETHYLENE/TRICHLORO, ETHYLENE GLYCOL MONOBUTYL ETHER (U)

VAPORS OF TRICHLOROETHYLENE, TOLUENE, METHYL ETHYL KETONE, AND BUTYL CELLOSOLVE IN AIR WERE COLLECTED USING SCOTCHPAC AND TEDLAR BAGS, GLASS PRESCRIPTION BOTTLES, AND CHARCOAL ADSORPTION TUBES. EFFICIENCIES OF COLLECTION ARE REPORTED. (AUTHOR) (U)

AD-752 529 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

TESTING DESIGN AND PROCUREMENT OF INCINERATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 69 32DP WALLACE,JAMES B. I
REPT. NO. EHL-M-69M-29
PROJ: EHL-E69-40

UNCLASSIFIED REPORT

DESCRIPTORS: (*INCINERATORS, AIR POLLUTION); (*AIR POLLUTION, COMBUSTION PRODUCTS); (*MILITARY FACILITIES, AIR POLLUTION), GAS ANALYSIS, LAW, SAMPLING, STANDARD(U)
IDENTIFIERS: AIR POLLUTION, CONTROL, FLUE GASES (U)

THE REPORT DISCUSSES THE DESIGN, PERFORMANCE, AND TESTING OF INCINERATORS AT FEDERAL FACILITIES. ALSO GIVEN ARE THE FOLLOWING ARTICLES: EXECUTIVE ORDER 11282, 'CONTROL OF AIR POLLUTION ORIGINATING FROM FEDERAL INSTALLATIONS; 'PREVENTION, CONTROL, AND ABATEMENT OF AIR POLLUTION FROM FEDERAL GOVERNMENT ACTIVITIES'; 'SPECIFICATIONS FOR INCINERATOR TESTING AT FEDERAL FACILITIES'; AND AN INTERIM GUIDE TO GOOD PRACTICE FOR SELECTING INCINERATORS FOR FEDERAL FACILITIES. (U)

AD-833 962L 13/2 7/4
ENVIRONMENTAL RESEARCH CORP ST PAUL MINN

INVESTIGATION OF AN ELECTROSTATIC COAGULATION AIR SAMPLER. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 67-MAY 68.
MAY 68 37P VOMELA,R. A. (REES,L. W.
)
REPT. NO. 801
CONTRACT: DAAD09-68-C-0003

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY: OTHERS TO ARMY MATERIEL COMMAND, ATTN: AMCPM-DECH, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*AIR POLLUTION, SAMPLERS), ELECTROSTATICS, AEROSOLS, DROPS, EVAPORATION, PARTICLES, ATOMIZATION, SPRAY NOZZLES, LIQUIDS, IONS, NEUTRALIZATION, COAGULATION, CHARGED PARTICLES, ELECTRICAL CORONA, SAMPLING (U)

THE PURPOSE OF THIS PROJECT WAS EXPLORATION OF THE FEASIBILITY OF USING THE MECHANISM OF ELECTROSTATIC COAGULATION FOR LARGE-VOLUME AIR SAMPLING. VIABLE PARTICULATE MATTER WAS TO BE COLLECTED FROM AIR FLOWING AT A RATE OF 1000 LITERS PER MINUTE INTO A LIQUID FLOWING AT A RATE OF FOUR MILLILITERS PER MINUTE. A THEORETICAL ANALYSIS WAS CONDUCTED TO PROVIDE FUNDAMENTAL DESIGN INFORMATION. LABORATORY EXPERIMENTS WERE PERFORMED TO DEMONSTRATE DESIGN FEASIBILITY AND SUBSEQUENTLY, A PROTOTYPE SAMPLER WAS DESIGNED, BUILT AND TESTED. THE AIRBORNE PARTICLES ARE NEGATIVELY CHARGED BY A CORONA CHARGER AS THEY ENTER THE SAMPLER. THE CHARGED PARTICLES THEN FLOW INTO A COAGULATION CHAMBER WHERE THEY ARE MIXED WITH AN ELECTROSTATICALLY ATOMIZED LIQUID. OPPOSITE CHARGES ON THE ATOMIZED LIQUID DROPLETS AND THE PARTICLES CAUSE RAPID COAGULATION TO OCCUR. AFTER COAGULATING, THE PARTICLE-LADEN DROPLETS ARE ELECTRICALLY PRECIPITATED ONTO THE CHAMBER WALLS AND REMOVED WITH A MECHANICAL WIPER. (U)

AD-784 813 7/4 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING SO2, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,
AUG 74 22P DEE,L. A. (MARTENS,H. H.
(NAKAMURA,J. T.)
REPT. NO. AFRPL-TR-74-54
PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE, *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE OXIDES, LITHIUM CARBONATES, *AIR POLLUTION DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE (SIF4) USING THE SOLID SORBENT TECHNIQUE WAS INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN. SORBENTS INCLUDED LI2CO3, PRO2, AND MNO2. (U)

AD-856 720 6/13 6/13
FORT DETRICK FREDERICK MD

LARGE-VOLUME AIR SAMPLERS FOR COLLECTING AND CONCENTRATING MICROORGANISMS. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO., JUN 69 39P
DECKER,HERBERT M. IFRISQUE, DAVID E. INGBERTS,BILLY M. IGRAF,LLOYD M. I

REPT. NO. SMUFD-TM-172
PROJ: DA-1-B-662706-A-072

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*MICROORGANISMS, COLLECTING METHODS): SAMPLERS, AIR POLLUTION, DESIGN, ELECTROSTATIC PRECIPITATION, BACTERIA, AIRBORNE (U)

THIS TECHNICAL MEMORANDUM SUMMARIZES IN-HOUSE AND GOVERNMENT CONTRACT STUDIES RELATED TO THE DEVELOPMENT OF LARGE-VOLUME AIR SAMPLERS FOR CONCENTRATING AIRBORNE MICROORGANISMS INTO A COLLECTING FLUID. INFORMATION IS PROVIDED ON THE DESIGN PRINCIPLES AND THE COLLECTION EFFICIENCY, WHERE APPLICABLE, OF SAMPLERS DEVELOPED UNDER RESEARCH PROGRAMS AS WELL AS THOSE AVAILABLE COMMERCIALLY. (AUTHOR) (U)

AD-892 736 19/2 13/2
ENVIRONMENTAL RESEARCH CORP ST PAUL MINN

INVESTIGATION OF AN INERTIAL AIR SAMPLER. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 67-SEP 68, SEP 68 99P
VONELA,R. A. IREES,L. W. I

REPT. NO. 402
CONTRACT: DAAA13-67-C-0189

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TID. FREDERICK, MD. 21701.

DESCRIPTORS: (*AIR POLLUTION, *SAMPLERS), INERTIA, AEROSOLS, COLLECTING METHODS, IMPACT, DISKS, ROTATION, FEASIBILITY STUDIES, DESIGN, PARTICLE SIZE, INSTRUMENTATION, TEST METHODS, EFFICIENCY (U)
IDENTIFIERS: COMPARATIVE STUDIES (U)

THE PURPOSE OF THIS PROJECT WAS EXPLORATION OF THE FEASIBILITY OF USING THE INERTIA OF A PARTICLE FOR COLLECTION BY IMPACTING IT ON A MOVING SURFACE. VIABLE PARTICULATE MATTER WAS TO BE COLLECTED FROM AIR FLOWING AT A RATE OF 1000 LITERS PER MINUTE INTO A LIQUID FLOWING AT A RATE OF FOUR MILLILITERS PER MINUTE. A THEORETICAL ANALYSIS WAS CONDUCTED TO PROVIDE FUNDAMENTAL DESIGN INFORMATION. LABORATORY EXPERIMENTS WERE PERFORMED TO DEMONSTRATE DESIGN FEASIBILITY AND SUBSEQUENTLY, A PROTOTYPE SAMPLER WAS DESIGNED, BUILT AND TESTED. THE SAMPLER USES A HIGH-SPEED ROTATING DISK WHICH CONSISTS OF A SOLID CENTER AND FINE WIRES MOUNTED ON ITS PERIPHERY. LIQUID IS FED ONTO THE DISK CENTER, AND BECAUSE OF CENTRIFUGAL FORCE, IT FLOWS AS A CONTINUOUS FILM ACROSS THE DISK AND ONTO THE WIRES. AIRBORNE PARTICLES IMPACT ON THE WIRES AND ARE TRANSPORTED BY THE LIQUID FILM TO A COLLECTION CHAMBER. THE PARTICLE-LADEN LIQUID IS SUBSEQUENTLY PUMPED TO A RESERVOIR. (AUTHOR) (U)

AD-A00 881 13/2 19/2
OKLAHOMA STATE UNIV STILLWATER FLUID CONTROL AND SYSTEMS CENTER

AIR PARTICULATE CLASSIFIER FOR THE U. S. ARMY. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 68-AUG 69.
AUG 69 51P TESSMANN,RICHARD E. ;
REPT. NO. FPCL-69-5
CONTRACT: DAAA13-68-C-8079

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*AIR POLLUTION, TEST FACILITIES); (*BACTERIA, SAMPLERS); BACTERIA; CLASSIFICATION; FEASIBILITY STUDIES; PARTICLES; PARTICLE SIZE; DESIGN; SPECIFICATIONS (U)

THE PURPOSE OF THE CONTRACT WAS TO: PHASE I - CONDUCT RESEARCH ON THE FEASIBILITY OF ADAPTING THE HYDROCLONE PRINCIPLE TO SELECTIVELY REMOVING CERTAIN SIZE PARTICLES FROM AN AIR STREAM. PHASE II - DESIGN AND DEVELOP A PROTOTYPE HYDROCLONE CAPABLE OF REMOVING CERTAIN SIZE PARTICLES AND DEPOSITING THESE PARTICLES IN A LIQUID OR AIR STREAM FOR FURTHER PROCESSING BY THE GOVERNMENT. IT WAS DETERMINED DURING THE FEASIBILITY STUDY (PHASE I) THAT THE MOST DESIRABLE APPROACH TO THE PROBLEM OF SELECTIVELY REMOVING CERTAIN SIZE PARTICLES FROM AN AIR STREAM WAS TO UTILIZE TWO HYDROCLONES AS FOLLOWS: (1) ONE HYDROCLONE TO REMOVE ALL PARTICLES GREATER IN SIZE THAN THE CHALLENGE PARTICLES. (2) A SECOND HYDROCLONE TO REMOVE ALL PARTICLES DOWN TO THE SMALLEST SIZE CHALLENGE PARTICLE. THESE TWO HYDROCLONES WERE CONNECTED IN SERIES TO ACHIEVE THE DESIRED SELECTIVITY. EACH OF THE TWO HYDROCLONES WERE DESIGNED AND TESTED SEPARATELY. THE HYDROCLONE TO REMOVE ALL PARTICLES GREATER THAN THE CHALLENGE PARTICLES WAS DESIGNED AND TESTED FIRST. RESULTS OF THE TESTING ON THIS HYDROCLONE LED TO THE DESIGN OF THE HYDROCLONE TO REMOVE THE CHALLENGE PARTICLES. THE HYDROCLONES WERE THEN ASSEMBLED IN SERIES AND TESTED FOR FINAL VERIFICATION. (AUTHOR) (U)

AD-A00 160 15/2 19/2
FORT DETRICK FREDERICK MD

STUDIES ON THE USE OF A NOVEL AEROSOLIZATION DEVICE FOR COLLECTING AND SIZING PARTICLES IN THE AMBIENT ATMOSPHERE. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 69 30P DEWS,JULE M. (STEFANYE, DAVID ;
REPT. NO. SMUFD-TM-177
PROJ: DA-1-8-062706-A-071

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*AEROSOLS, ATMOSPHERES); (*PARTICLES, COLLECTING METHODS); LABORATORY EQUIPMENT; CONFIGURATION; TEST METHODS; PARTICLE SIZE; MODIFICATION KITS; PERFORMANCE(ENGINEERING); AIR POLLUTION; MODELS(SIMULATIONS); MONITORS; SEPARATION (U)
IDENTIFIERS: EVALUATION (U)

A NOVEL LABORATORY AEROSOLIZATION DEVICE WAS STUDIED TO EVALUATE ITS POTENTIAL AS AN AEROSOL-PARTICULATE COLLECTOR-SEPARATOR. ALTHOUGH NOT DESIGNED PRIMARILY AS A COLLECTOR, THE DEVICE WAS SHOWN TO FUNCTION EFFICIENTLY WHEN OPERATED IN THIS MODE. PARTICULATES GREATER THAN 1 MICRON IN DIAMETER COULD BE GATHERED BY THE DEVICE FROM AN AEROSOL OF MIXED PARTICLE SIZES. A UNIQUE FEATURE LONG-TERM RETENTION OF THE COLLECTED SAMPLE IN THE AEROSOL FORM. A MODEL IS PRESENTED IN WHICH THE FACTORS ARE DISCUSSED THAT ARE RELEVANT FOR RETENTION OF PARTICULATES IN THE AEROSOLIZED STATE. PROBLEMS IN APPLYING THE COLLECTOR TO INTERFACE WITH A BIOLOGICAL AEROSOL DETECTION DEVICE ARE OUTLINED WITH SUGGESTIONS FOR FURTHER STUDIES. (AUTHOR) (U)

AD-884 989L 9/1 19/2
DOUGLAS AIRCRAFT CO INC SANTA MONICA CALIF MISSILE AND SPACE SYSTEMS DIV

STATISTICAL DATA SUMMARY. PARTICLE SIZE DISTRIBUTION IN THE AIR. PART I. ABSTRACT AND INTRODUCTION. (U)

DESCRIPTIVE NOTE: REPT. FOR OCT 61-SEP 62.
JAN 63 19P
REPT. NO. DAC-SM-62667-PT-1
CONTRACT: DA-18-064-CML-2796

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 24 AUG 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY BIOLOGICAL DEFENSE RESEARCH CENTER, ATTN: TECHNICAL INFORMATION DIV. FREDERICK, MD. 21701.
SUPPLEMENTARY NOTE: SEE ALSO PART 2, AD-884 990L.

DESCRIPTORS: (*URBAN AREAS, AEROSOLS), (*AEROSOLS, MILITARY FACILITIES), (*BIOLOGICAL WARFARE AGENTS, EARLY WARNING SYSTEMS), STATISTICAL DATA, SAMPLING, CORRELATION TECHNIQUES, AIR POLLUTION, ATMOSPHERIC TEMPERATURE, HUMIDITY, WIND, BAROMETRIC PRESSURE, PARTICLE SIZE, TABLES(DATA), UNITED STATES (U)

TABLES PROVIDE DATA ON PARTICULATE NATURAL AEROSOLS IN THE UNITED STATES AS OBTAINED BY PHOTOMETRIC PARTICLE SIZE ANALYZERS. CONCENTRATIONS ARE COMPARED FOR 10 SIZE CLASSES, 24 HOUR PERIODS AND FOR VARIOUS DAYS AND PLACES. STATISTICS PROVIDED INCLUDE THE AVERAGE NUMBER OF PARTICLES PER LITER AND ITS STANDARD DEVIATION FOR EACH SIZE CLASS DURING EACH SAMPLED HOUR. THE PRODUCT-MOMENT CORRELATION COEFFICIENT BETWEEN THE SIZES IS ALSO PROVIDED FOR EACH HOURLY SAMPLE. RANGE OF VALUES OF CERTAIN WEATHER PARAMETERS IS GIVEN FOR EACH HOUR. THE WEATHER PARAMETERS INCLUDE TEMPERATURE, RELATIVE HUMIDITY, WIND SPEED AND BAROMETRIC PRESSURE. A SHORT STOCHASTIC DISCUSSION DESCRIBES THE NATURE AND LIMITS OF TABLE APPLICABILITY DUE TO THE SPECIFIC SAMPLING METHODS AND STATISTICAL REDUCTION TECHNIQUES CHOSEN. (AUTHOR) (U)

AD-877 206 13/2 19/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

ATMOSPHERIC DIFFUSION OF BERYLLIUM PROGRAM (PROJECT ADOBE). VOLUME III. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. APR 69-FEB 70, JUN 70 183P TUCKER, GORDON L. (HALONE, HUGH E. (SMITH, ROBERT W.)
REPT. NO. AFRPL-TR-70-65-VOL-3
PROJ: AF-3059
TASK: 305999, 305907

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-877 095.

DESCRIPTORS: (*AIR POLLUTION, BERYLLIUM), (*BERYLLIUM, DIFFUSION), (*SOLID PROPELLANT ROCKET ENGINES, CAPTIVE TESTS), (*TEST FACILITIES, SOLID PROPELLANT ROCKET ENGINES), CLOUDS, TRACKING, SAMPLING, TABLES(DATA) (U)
IDENTIFIERS: ADOBE PROJECT, ADOBE(ATMOSPHERE DIFFUSION OF BERYLLIUM), ATMOSPHERIC DENSITY, DIFFUSION (U)

THE REPORT PRESENTS THE CLOUD TRACKING DATA COLLECTED DURING THE PROJECT ADOBE DIFFUSION PROGRAM. THIS PROGRAM WAS A FIELD INVESTIGATION WHICH PROVIDED EXPERIMENTAL DATA ON THE DIFFUSION OF BERYLLIUM FROM 100 LB TO 4000 LBS SOLID ROCKET MOTOR FIELD OVER A 25 SQUARE MILE SECTOR, ARRAYED WITH 492 AIR SAMPLERS (250-350 PER TEST) LOCATED FROM 600 METERS TO 9600 METERS FROM THE SOURCE. THE EXPERIMENTS WERE CONDUCTED UNDER BOTH STABLE AND UNSTABLE ATMOSPHERIC METEOROLOGICAL CONDITIONS FROM APRIL 1969 TO NOVEMBER 1967 AT THE AIR FORCE ROCKET PROPULSION LABORATORY. THE DATA ANALYSIS WAS COMPLETED IN FEBRUARY 1970. (AUTHOR) (U)

AD-902 605 13/2 6/6
DEFENCE STANDARDS LABS MARIBYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL SAMPLER. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
JAN 72 15P THOMSON,G. H. I
REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*ELECTROSTATIC PRECIPITATION, *SAMPLERS), AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES, VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY, COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT, SAMPLING, CONCENTRATION(CHEMISTRY), CONTROL, WASTES(INDUSTRIAL), AUSTRALIA, WASTE GASES (U)
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS (U)

THE EFFICIENCY OF AN MSA ELECTROSTATIC ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW RATE, APPLIED VOLTAGE, PARTICLE SIZE AND CONCENTRATION OF PARTICULATE MATTER. THE CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY DIFFERENT FROM THEORETICAL PREDICTIONS. (AUTHOR) (U)

201

AD-887 004L 9/1 15/2
DOUGLAS AIRCRAFT CO INC SANTA MONICA CALIF MISSILE AND SPACE SYSTEMS DIV

STATISTICAL DATA SUMMARY. PARTICLE SIZE DISTRIBUTION IN THE AIR. PART XVI. DENVER. (U)

DESCRIPTIVE NOTE: REPT. FOR OCT 61-SEP 62.
JAN 63 301P
REPT. NO. DAC-SM-62667-PT-16
CONTRACT: DA-18-064-CML-2796

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 29 AUG 71. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY BIOLOGICAL DEFENSE RESEARCH CENTER, ATTN: TECHNICAL INFORMATION DIV. FREDERICK, MD. 21701.
SUPPLEMENTARY NOTE: SEE ALSO PART 15, AD-887 003L AND PART 17, AD-887 005L.

DESCRIPTORS: (*AEROSOLS, URBAN AREAS), (*BIOLOGICAL WARFARE AGENTS, EARLY WARNING SYSTEMS), STATISTICAL DATA, SAMPLING, CORRELATION TECHNIQUES, AIR POLLUTION, ATMOSPHERIC TEMPERATURE, HUMIDITY, WIND, BAROMETRIC PRESSURE, PARTICLE SIZE, TABLE(DATA), COLORADO (U)
IDENTIFIERS: DENVER(COLORADO) (U)

TABLES PROVIDE DATA ON PARTICULATE NATURAL AEROSOLS IN THE UNITED STATES AS OBTAINED BY PHOTOMETRIC PARTICLE SIZE ANALYZERS. CONCENTRATIONS ARE COMPARED FOR 10 SIZE CLASSES, 24 HOUR PERIODS AND FOR VARIOUS DAYS AND PLACES. STATISTICS PROVIDED INCLUDE THE AVERAGE NUMBER OF PARTICLES PER LITER AND ITS STANDARD DEVIATION FOR EACH SIZE CLASS DURING EACH SAMPLED HOUR. THE PRODUCT-MOMENT CORRELATION COEFFICIENT BETWEEN THE SIZES IS ALSO PROVIDED FOR EACH HOURLY SAMPLE. RANGE OF VALUES OF CERTAIN WEATHER PARAMETERS IS GIVEN FOR EACH HOUR. THE WEATHER PARAMETERS INCLUDE TEMPERATURE, RELATIVE HUMIDITY, WIND SPEED AND BAROMETRIC PRESSURE. A SHORT STOCHASTIC DISCUSSION DESCRIBES THE NATURE AND LIMITS OF TABLE APPLICABILITY DUE TO THE SPECIFIC SAMPLING METHODS AND STATISTICAL REDUCTION TECHNIQUES CHOSEN. THE RESEARCH WAS CONDUCTED IN DENVER, COLORADO. (AUTHOR) (U)

AD-664 976 13/11 6/17
FORT DETRICK FREDERICK MD

AIR FILTRATION OF SUBMICRON VIRUS AEROSOLS. (U)

67 8P HARSTAD,J. BRUCE (DECKER, HERBERT M. (BUCHANAN,LEE M. (FILLER,MELVIN E. (

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF PUBLIC HEALTH, V57 N12 P2186-93 1967.
SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE ENGINEERING AND SANITATION SECTION OF THE AMERICAN PUBLIC ASSOCIATION ANNUAL MEETING (99TH) SAN FRANCISCO, CALIF., 1 NOV 1966.

DESCRIPTORS: (*AIR POLLUTION, *FLUID FILTERS), (*BACTERIAL AEROSOLS, FLUID FILTERS), VIRUSES, BACTERIOPHAGES, PERFORMANCE(ENGINEERING), GLASS TEXTILES, SANITARY ENGINEERING, ASBESTOS, PAPER, PUBLIC HEALTH, BACILLUS SUBTILIS (U)
IDENTIFIERS: PHTHALATE/DIOCTYL (U)

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON PARTICLES (0.1 MICRON MMD). TESTS WERE CONDUCTED TO COMPARE AIR FILTERS IN REMOVING SUBMICRON T1 PHAGE AEROSOLS AND BACTERIAL AEROSOLS OF BACILLUS SUBTILIS VAR NIGER SPORES (1 MICRON MMD). ARCHITECTS, ENGINEERS, AND RESEARCH INVESTIGATORS CONCERNED WITH THE CONTROL OF SUBMICRON PARTICLES MIGHT CONSIDER FILTRATION RATHER THAN OTHER METHODS OF AIR CLEANING. (AUTHOR) (U)

202

AD-898 570 1972 1972
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-SAMPLING DEVICES. (U)

JAN 69 30P CURTIS,JOHN J. (
REPT. NO. SMUFD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, AEROSOLS), (*AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS, ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE, FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA, EGGS (U)
IDENTIFIERS: EVALUATION, *PESP(POROUS ELECTRODE ELECTROSTATIC PRECIPITATOR) (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES. BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS, ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES. (AUTHOR) (U)

AD-440 330
DANISH ATOMIC ENERGY COMMISSION ROSKILDE

INVESTIGATION OF SOME FILTRATION PROBLEMS IN A HIGH-ACTIVITY HANDLING BUILDING. I. RADIOIODINE AND -CAESIUM SAMPLING FROM THE VENTILATION AIR OF A HIGH-ACTIVITY HANDLING BUILDING. II. THE PARTICLE-FILTRATION EFFICIENCY OF INSTALLED FILTERS IN THE HIGH-ACTIVITY HANDLING BUILDING 959 AT HARWELL. (U)

NOV 64 24P FLYGER,HANS I
REPT. NO. 99

UNCLASSIFIED REPORT

NOFORN
SUPPLEMENTARY NOTE!

DESCRIPTORS! (•NUCLEAR PHYSICS LABORATORIES, VENTILATION), FILTERS (FLUID), EFFECTIVENESS, RADIOACTIVE ISOTOPES, IODINE, CESIUM, SAMPLING, CHARCOAL, GLASS TEXTILES, ADSORPTION, ATMOSPHERES, PURIFICATION, DUST, PARTICLE SIZE, URANIUM COMPOUNDS, CARBIDES, BUILDINGS (U)

203

PART I OF THE REPORT DEALS WITH THE EFFICIENCY OF DIFFERENT FILTERS TOWARDS RADIO-IODINE AND -CAESIUM IN THE VENTILATION AIR FROM A HIGHACTIVITY HANDLING BUILDING. THE IODINE ACTIVITY REPORTED WAS RELEASED DURING THE PROCESSING OF A RIG CONTAINING URANIUM CARBIDE AND WAS DRAWN THROUGH A 10 CM BED OF GRANULATED ACTIVATED CARBON BEFORE IT WAS SAMPLED. APPARENTLY THE SAMPLED ACTIVITY WAS MAINLY PRESENT IN THE GASEOUS FORM! THEREFORE THE ADSORBENT QUALITIES OF THE VARIOUS FILTERS TOWARDS VAPOROUS COMPOUNDS ARE OF GENERAL INTEREST. PART II OF THE REPORT GIVES AN ESTIMATE OF THE SIZE DISTRIBUTION OF DUST PARTICLES PRESENT AS PERMANENT ATMOSPHERIC IMPURITIES IN THE INTAKE AIR OF THE HIGHACTIVITY HANDLING BUILDING. AN ATTEMPT IS MADE TO EVALUATE THE PARTICLE-FILTRATION EFFICIENCY OF AN INSTALLED FILTER BANK FROM A COMBINATION OF THIS ESTIMATE WITH A FILTRATION THEORY AND A PHOTOELECTRIC COUNTING OF THE NUMBERS OF PARTICLES PRESENT AT THE SAME TIME ON EITHER SIDE OF THE FILTER BANK. A COMPARISON OF THE RESULTS FOUND WITH CORRESPONDING METHYLENE-BLUE TEST RESULTS LEADS TO A REFINEMENT OF THE FINAL ANALYSIS. PHOTOELECTRIC COUNTINGS OF THE PARTICLE NUMBERS IN THE AIR INSIDE THE VENTILATION SYSTEM HANDLING THE AIR FROM THE HIGH-ACTIVITY HANDLING CELLS SHOW CONSPICUOUSLY THE PRESENCE OF 100 TIMES THE NUMBER OF PARTICLES THAT ARE PRESENT IN THE AIR ENTERING THE BUILDING. (AUTHOR) (U)

AD-858 140 16/2 19/2
FORT DETRICK FREDERICK MD

STUDIES ON THE USE OF A NOVEL AEROSOLIZATION DEVICE FOR COLLECTING AND SIZING PARTICLES IN THE AMBIENT ATMOSPHERE. (U)

DESCRIPTIVE NOTE! TECHNICAL MEMO.,
AUG 69 30P DEWS,JULE M. !STEFANYE, DAVID I
RPT. NO. SMUFD-TM-177
PROJ! DA-1-B-862706-A-071

UNCLASSIFIED REPORT
DISTRIBUTION! NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN! TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS! (•AEROSOLS, ATMOSPHERES), (•PARTICLES, COLLECTING METHODS), LABORATORY EQUIPMENT, CONFIGURATION, TEST METHODS, PARTICLE SIZE, MODIFICATION KITS, PERFORMANCE(ENGINEERING), AIR POLLUTION, MODELS(SIMULATIONS), MONITORS, SEPARATION (U)
IDENTIFIERS! EVALUATION (U)

A NOVEL LABORATORY AEROSOLIZATION DEVICE WAS STUDIED TO EVALUATE ITS POTENTIAL AS AN AEROSOL-PARTICULATE COLLECTOR-SEPARATOR. ALTHOUGH NOT DESIGNED PRIMARILY AS A COLLECTOR, THE DEVICE WAS SHOWN TO FUNCTION EFFICIENTLY WHEN OPERATED IN THIS MODE. PARTICULATES GREATER THAN 1 MICRON IN DIAMETER COULD BE GATHERED BY THE DEVICE FROM AN AEROSOL OF MIXED PARTICLE SIZES. A UNIQUE FEATURE LONG-TERM RETENTION OF THE COLLECTED SAMPLE IN THE AEROSOL FORM. A MODEL IS PRESENTED IN WHICH THE FACTORS ARE DISCUSSED THAT ARE RELEVANT FOR RETENTION OF PARTICULATES IN THE AEROSOLIZED STATE. PROBLEMS IN APPLYING THE COLLECTOR TO INTERFACE WITH A BIOLOGICAL AEROSOL DETECTION DEVICE ARE OUTLINED WITH SUGGESTIONS FOR FURTHER STUDIES. (AUTHOR) (U)

AD-909 457L 7/9 6/3 15/2
EDGEWOOD ARSENAL MD

IMPACTION EFFICIENCY OF CYLINDRICAL COLLECTORS IN LAMINAR AND TURBULENT FLUID FLOW. PART III. EXPERIMENTAL. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 71-JUN 72. MAR 73 94P STUEMPFLE,ARTHUR K. :
REPT. NO. EA-TR-4733
PROJ: DA-1-W-062116-A-089
TASK: 1-W-062116-A-08902

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY: TEST AND EVALUATION: MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*SAMPLERS, *AEROSOLS), LAMINAR FLOW, COLLECTING METHODS, SAMPLING, PARTICLE SIZE, IMPACT, DISTRIBUTION, THEORY, EQUATIONS OF MOTION, MATHEMATICAL PREDICTION, TURBULENCE, GAS FLOW, CYLINDRICAL BODIES, GAS DETECTORS, DROPS, PARTICLES, AIR POLLUTION, AERODYNAMIC CHARACTERISTICS, WIND TUNNELS, AEROBIOLOGY, EFFICIENCY (U)

THE COLLECTION EFFICIENCIES OF PAPER-COATED GLASS CYLINDERS AT LOW VALUES OF THE PARTICLE INERTIAL PARAMETER RELEVANT TO CHEMICAL OPERATIONS WERE DETERMINED IN A WIND TUNNEL UNDER LAMINAR AND CONTROLLED TURBULENT FLOW CONDITIONS. IMPACTION EFFICIENCIES COMPUTED BY THE INERTIAL IMPACTION THEORY FOR INERTIAL PARAMETERS APPROACHING THE THEORETICAL CUTOFF VALUE ACCURATELY PREDICT THE COLLECTION EFFICIENCY OF CYLINDERS UNDER LAMINAR FLOW CONDITIONS AND LEVELS OF TURBULENCE LESS THAN 7.9%. MANYFOLD INCREASES IN THE COLLECTION EFFICIENCY OF CYLINDERS AT LOW INERTIAL PARAMETER VALUES WERE OBSERVED AS A FUNCTION OF RELATIVE TURBULENCE INTENSITY AND EULERIAN LONGITUDINAL MACROSCALE OF THE TURBULENT FLOW FIELD. THE COLLECTION EFFICIENCY DATA FOR CYLINDERS CAN BE PROPERLY ORDERED BY THE TAYLOR PARAMETER. THE LEEWARD DEPOSITION EFFICIENCY WAS SUBSTANTIAL AND EXCEEDED THE WINDWARD COLLECTION EFFICIENCY FOR MOST FLOW CIRCUMSTANCES. (AUTHOR) (U)

AD-849 764 7/6 21/9 14/2
PANAMETRICS INC WALTHAM MASS

DEVELOPMENT OF A PROTOTYPE VAPOR DETECTION DEVICE FOR ATMOSPHERIC SAMPLING AND ANALYSIS FOR FLUORINE AND HYDROGEN FLUORIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 66-OCT 67. NOV 68 89P CUCCHIARA,ORLANDO !GOODMAN, PHILIP !DONAGHUE,THOMAS :
CONTRACT: AF 04(611)-11909
PROJ: AF-3050
MONITOR: AFRPL TR-68-233

UNCLASSIFIED REPORT

DESCRIPTORS: (*FLUORINE, *EXHAUST GASES), (*GAS ANALYSIS, *FLUORINE COMPOUNDS), ROCKET PROPELLANTS, FLUORIDES, RADIOACTIVE ISOTOPES, AIR POLLUTION, HYDROGEN COMPOUNDS, RADIATION CHEMISTRY, EXCHANGE REACTIONS (U)
IDENTIFIERS: ATMOSPHERES, SAMPLING (U)

A PROTOTYPE MODEL OF AN INSTRUMENT WHICH DEMONSTRATES THE APPLICABILITY OF THE RADIOCHEMICAL EXCHANGE TECHNIQUE TO SIMULTANEOUSLY DETECT FLUORINE AND HYDROGEN FLUORIDE WAS DEVELOPED. THE INSTRUMENT UTILIZES SILICON KRYPTONATE FOR THE DETECTION OF HYDROGEN FLUORIDE AND HYDROQUINONE CLATHRATE FOR THE DETECTION OF FLUORINE. THIS REPORT DESCRIBES THE CONSTRUCTION, CALIBRATION AND A LABORATORY EVALUATION OF THE PERFORMANCE OF THE INSTRUMENT. THE INSTRUMENT WILL SIMULTANEOUSLY DETECT HYDROGEN FLUORIDE AT CONCENTRATIONS OF 0-50 PPM BY VOLUME AND FLUORINE AT 0-10 PPM BY VOLUME. THE DETECTION SYSTEM IS COMPRISED OF THREE PACKAGES WHICH CAN BE INTERCONNECTED FOR 8-HOUR OR 24-HOUR BATTERY OPERATION OR FOR 24-HOUR 115V, 60 HZ LINE OPERATION. (AUTHOR) (U)

AD-867 059 15/2
CORNELL AERONAUTICAL LAB INC BUFFALO N Y ELECTRONICS RESEARCH DEPT

AEROSOL SAMPLING FOR PARTICLE SIZE ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JAN 69-JAN 70,
JAN 70 106P SCHNEEBERGER,R. F. ;
SPRINGSTON,D. P. ;
REPT. NO. CAL-AG-2756-E-1
CONTRACT: DAAA15-69-C-0337
PROJ: DA-1-R-56260-ZA-084
TASK: 1-R-56260-ZA-0840-2

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSFE-A, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AEROSOLS, PARTICLE SIZE), SAMPLERS, DISTRIBUTION, WIND TUNNEL MODELS, DESIGN, OPERATION, EFFICIENCY (U)
IDENTIFIERS: RCIS(ROTATING CUP IMPACTION SAMPLERS), *ROTATING CUP IMPACTION SAMPLERS (U)

THE PROGRAM HAD AS ITS OBJECTIVE THE DEVELOPMENT AND TEST OF A DEVICE CAPABLE OF PROVIDING ESTIMATES OF PARTICLE SIZE AND PARTICLE SIZE DISTRIBUTION IN AEROSOL CLOUDS FOR PARTICLES IN THE RANGE OF FROM 10 TO 150 MICRONS. THE DEVICE, DESIGNATED THE ROTATING CUP IMPACTION SAMPLER (RCIS), IS BASED ON IMPACTION THEORY, WHEREIN THE SAMPLING EFFICIENCY IS A FUNCTION OF THE IMPACTION PARAMETER, K, WHICH IS IN TURN A FUNCTION OF CUP RADIUS, CUP VELOCITY, AND PARTICLE SIZE. BY EMPLOYING SEVERAL CUPS OF DIFFERING SIZES AND SPEEDS, A RANGE OF IMPACTION PARAMETERS, AND THEREFORE SAMPLING EFFICIENCIES CAN BE ACHIEVED.

AD-850 267L 21/5
NAVAL AIR PROPULSION TEST CENTER PHILADELPHIA PA AERONAUTICAL ENGINE DEPT

MEASUREMENT OF THE CONCENTRATION AND SIZE DISTRIBUTION OF THE SEA SALT AEROSOL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 69 24P VIOLA,JOSEPH ;
REPT. NO. NAPTC-AED-1899
PROJ: NAPTC-AED-IED-15

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 1 JUN 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL AIR SYSTEMS COMMAND, ATTN: AIR-536, WASHINGTON, D. C. 20360.

DESCRIPTORS: (*GAS TURBINES, CORROSION), (*AEROSOLS, MEASUREMENT), SALT SPRAY TESTS, AEROSOLS, PARTICLE SIZE, DISTRIBUTION, MEMBRANES, INGESTION(ENGINES), FLUID FILTERS, ATOMIC SPECTROSCOPY, SPECTROPHOTOMETERS, ABSORPTION, SAMPLING, PERFORMANCE(ENGINEERING), SEA WATER (U)

THE REPORT DESCRIBES METHODS AND TECHNIQUES TO MEASURE NATURAL OR SIMULATED SALT AIR ENVIRONMENT. REQUIREMENT IS IN SUPPORT OF THE NAVY'S CORROSION PROGRAM TO ELIMINATE THE LOSS OF GAS TURBINE PERFORMANCE DUE TO SALT INGESTION AT THE ENGINE INLET. METHODS TO DEFINE THE SALT AEROSOL ARE PRESENTED BY SPECIFYING ITS SALT CONCENTRATION AND SIZE DISTRIBUTION OF ITS PARTICLES. ADOPTED MEASUREMENT TECHNIQUES UTILIZING MILLIPORE MEMBRANE FILTERS AND CASCADED INERTIAL COLLECTION DEVICES ARE DISCUSSED. RECOMMENDATION IS MADE TO SAMPLE ISOKINETICALLY; USE INERTIAL IMPACTORS HAVING HIGH SAMPLING EFFICIENCIES; AND THE UTILIZATION OF AN ATOMIC ABSORPTION SPECTROPHOTOMETER FOR ACCURATE SAMPLE ANALYSIS. (AUTHOR) (U)

AD-777 135 4/1
EPSILON LABS INC BEDFORD MASS.

STRATOSPHERIC BALLOON AEROSOL PARTICLE COUNTER MEASUREMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 2 FEB-30 NOV 73,
NOV 73 77P MIRANDA,HENRY A. , JR.;
DULCHINOS,JOHN (MIRANDA,HENRY P.)
REPT. NO. FR-2001-73
CONTRACT: F19628-73-C-0138
PROJ: AF-7621
TASK: 762103
MONITOR: AFCRL TR-73-0700

UNCLASSIFIED REPORT

DESCRIPTORS: *AEROSOLS, *COUNTERS, *STRATOSPHERE, *TROPOSPHERE, BALLOON EQUIPMENT, SAMPLERS, PARTICLE SIZE, DISTRIBUTION, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: PARTICLE SIZE DISTRIBUTION, FORTRAN 4 PROGRAMMING LANGUAGE, IBM 370/155 COMPUTERS, PLOT01 COMPUTER PROGRAM, PULSE 2 COMPUTER PROGRAM, DATRUN COMPUTER PROGRAM, CORRE 3 COMPUTER PROGRAM, RATIO 1 COMPUTER PROGRAM (U)

A BALLOON-BORNE SUBMICRON AEROSOL COUNTER DEVELOPED UNDER PREVIOUS AIR FORCE CONTRACTS WAS SUCCESSFULLY FLOWN ON THREE STRATOSPHERIC BALLOON EXPERIMENTS OVER HOLLOMAN AFB, NEW MEXICO IN MAY OF 1973. THE RESULTS INDICATE THAT PARTICULATE MATTER AT HIGHER LEVELS IS CHARACTERIZED BY MARKEDLY DIFFERENT SCATTERING PARAMETERS THAN IS THE CASE AT LOWER LEVELS. THIS EFFECT IS MANIFESTED IN THE FORM OF EXCEEDINGLY SHARP CUT-OFFS IN THE SIZE DISTRIBUTION AT ABOUT 0.4 MICROMETER DIAMETER, WHICH IS ONLY OBSERVED ABOVE 23 KM. THE EXTENT TO WHICH THIS SHARP CUT-OFF IS ATTRIBUTABLE EITHER TO NONSPHERICAL PARTICLES OR TO INDEX OF REFRACTION UNCERTAINTIES RATHER THAN TO THE ACTUAL SIZE DISTRIBUTION, IS A MATTER OF CONJECTURE.

206

AD-693 974 15/2 19/2
ARMY BIOLOGICAL LABS FREDERICK MD

COMPARISON OF THE EFFICIENCY OF SOME TYPES OF SAMPLERS OF AEROGENIC BACTERIA, USING MONO- AND POLYDISPERSED INERT AEROSOLS. (U)

JAN 68 13P MANNARELLA,L. J
REPT. NO. TRANS-2095

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF RIVISTA DI MEDICINA AERONAUTICA E SPAZIALE (ITALY) V28 P62-74 1965.

DESCRIPTORS: (*AEROSOLS, COLLECTING METHODS), PARTICLE SIZE, WEIGHT, ENVIRONMENT, RETENTION(PSYCHOLOGY), CENTRIFUGES, BACTERIA, MODELS(SIMULATIONS), TEST METHODS, FLUID FILTERS, STATISTICAL DATA, DISKS, SPHERES, MEMBRANES, POROSITY, DISTRIBUTION, ITALY (U)
IDENTIFIERS: COMPARATIVE STUDIES, SLIT SAMPLERS, TRANSLATIONS (U)

THE VARIOUS APPARATUSES FOR DYNAMIC SAMPLING OF BACTERIAL AEROSOLS CURRENTLY IN USE, OFTEN BEHAVE IN A DIFFERENT MANNER IN THE PRESENCE OF POLYDISPERSED AEROSOLS. EACH APPARATUS PRODUCES ITS OWN MAXIMUM EFFICIENCY WITH RESPECT TO THE SAMPLING OF AEROGENIC PARTICLES HAVING A CERTAIN WEIGHT AND MASS; HOWEVER, MANY OF THESE SYSTEMS INVOLVE DIFFERENT DIRECTIONS FOR USE, DEPENDING UPON THE CHARACTERISTICS OF THE INSTRUMENT IN CONNECTION WITH THE PREVALENT DIMENSION OF THE PARTICLES IN THE AIR AND HENCE AS A FUNCTION OF THE DIFFERENT ENVIRONMENT TO BE CONTROLLED. IN ORDER TO HAVE EFFECTIVE CONTROLS, WE MUST THEREFORE KNOW THE LIMITS OF EFFICIENCY OF A SAMPLER WITH RELATION TO THE OPTIMUM DIMENSIONS OF THE AEROSOLIZED PARTICLES WHICH THE SAMPLER ITSELF IS CAPABLE OF PICKING UP. (AUTHOR) (U)

AD-676 966 6/2 6/5
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE VIRUS COLLECTION. (U)

DESCRIPTIVE NOTE: SUMMARY PROGRESS REPT. ON PHASE 2, DEC 66 76P PRINS.NO. P. 1
REPT. NO. 2021
CONTRACT: DA-18-064-AMC-229(A)
PROJ: DA-52406

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD.

DESCRIPTORS: (*SAMPLERS, AEROSOLS), (*VIRUSES, SAMPLERS), ELECTROSTATIC PRECIPITATION, COLLECTING METHODS, CHARGED PARTICLES, ELECTRON MICROSCOPY, CONVECTION, PRESSURE, CALIBRATION, FLOWMETERS, THERMAL PROPERTIES, INSTRUMENTATION, MEASURING INSTRUMENTS, PARTICLE SIZE, LAMINAR FLOW, AIRBORNE, VIRUSES, AEROSOL GENERATORS, DISTRIBUTION, TURBULENCE, ELECTROSTATICS (U)

207

THIS REPORT DESCRIBES THE WORK DONE IN TESTING AND CALIBRATING A SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE VIRUS COLLECTION. THE FLOW RATE OF THE INSTRUMENT WAS CALIBRATED AS A FUNCTION OF THE PRESSURE DROP ACROSS THE INLET ORIFICE. THE ELECTROSTATIC CONDITIONS FOR OPERATING THE INSTRUMENT WERE DETERMINED. THE EFFECT OF THE IMPACT COLLECTOR ON THE SIZE DISTRIBUTION OF THE AEROSOL WAS DETERMINED. THE CONDITIONS FOR A LAMINAR FLOW WERE ESTABLISHED. A VERY INTENSIVE SEARCH WAS MADE TO FIND THE CONDITIONS FOR LAMINAR FLOW WITH THE INSTRUMENT IN A HORIZONTAL POSITION. ERRORS FROM THERMAL CONVECTION, HOWEVER, COULD NOT BE OVERCOME, AND IN THE FINAL DESIGN THE PRECIPITATING TUBE IS MOUNTED VERTICALLY. A METHOD FOR SAMPLING THE PARTICLES FOR ELECTRON MICROSCOPY WAS DEVELOPED. MEASUREMENTS WERE MADE OF THE LOSSES TO THE WALL OF THE INSTRUMENT. TEST CURVES WERE OBTAINED AT COLLECTION VOLTAGES OF 15,000 AND 7,500 VOLTS. (AUTHOR)

AD-673 968 9/2
CALIFORNIA UNIV OAKLAND NAVAL BIOLOGICAL LAB

APPLICATION OF THE MICROAEROFLUOROMETER TO THE STUDY OF DISPERSION OF A FLUORESCENT AEROSOL INTO A SELECTED ATMOSPHERE. (U)

OCT 67 6P GOLDBERG,L. J. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF APPLIED METEOROLOGY, V7 N1 P68-72 FEB 68.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 10 SEP 67.

DESCRIPTORS: (*AEROSOLS, SCATTERING), DISTRIBUTION, MEASURING INSTRUMENTS, ELECTROOPTICS, MEASUREMENT, SAMPLING, PARTICLE SIZE, FLUORESCENCE, STATISTICAL ANALYSIS, ATMOSPHERES (U)

AN ELECTRO-OPTICAL DEVICE, THE GOLDBERG MICROAEROFLUOROMETER (MAFIA), HAS BEEN DEVELOPED TO PROVIDE A NEARLY INSTANTANEOUS FLUORESCENT AEROSOL COUNT. IT HAS AN EFFECTIVE SAMPLING RATE AND A USEFUL SENSITIVITY FOR LOW CONCENTRATIONS FOR SELECTED FLUORESCENT PARTICLES GREATER THAN OR EQUAL TO 0.5 MICRONS IN DIAMETER. (AUTHOR) (U)

AD-722 744 19/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME I. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.
MAR 71 72P
REPT. NO. DDC-TAS-70-84-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 261.

DESCRIPTORS: (*GAS DETECTORS, *BIBLIOGRAPHIES), ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION, CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

208 THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS DETECTORS COMPILED FROM THE DEFENSE DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS, ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-842 277 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

AGENT SAMPLING/SEPARATION STUDIES ENCOUNTERED IN DUSTY ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 17 APR-16 JUL 69,
SEP 69 91P ZELLER,HAROLD W. ;UPTON, JAMES E. ;
REPT. NO. ASD-3384
CONTRACT: DAAA15-69-C-0547
PROJ: DA-1-B-663705-D-601
TASK: 1-B-663705-D-60102

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*CHEMICAL WARFARE AGENTS, *TOXIC AGENT ALARMS), (*AEROSOLS, SEPARATION), DUST, CONTROLLED ATMOSPHERES, VEHICLES, SHELTERS, SAMPLING, RELIABILITY, GRAVITY, INERTIA, AIR FILTERS, DESIGN, HEATING (U)
IDENTIFIERS: AGENT CLOUD PARTICLES, CYCLONIC SEPARATORS (U)

THE DOCUMENT PRESENTS METHODS OF SAMPLING AGENT CLOUDS AND SEPARATING THESE AGENT AEROSOLS FROM INTERFERING PARTICULATE MATTER. INITIAL EMPHASIS IS THE SEPARATING OF DUST FROM THE TOTAL SAMPLE AND METHODS OF MAXIMIZING THE AMOUNT OF AGENT THAT REACHES THE DETECTOR. METHODS FOR SEPARATION ARE OBSERVED WITH EMPHASIS ON A CYCLONE SEPARATOR. CYCLONE DESIGN FACTORS ARE PRESENTED; A DESIGN FOR A MODEL CYCLONE IS PRESENTED. CALCULATIONS WERE MADE OF THE HEAT REQUIRED TO RAISE THE INCOMING AIR TEMPERATURE (INCLUDING HEAT LOSSES TO ENVIRONMENT) TO OVER 200F. (AUTHOR) (U)

AD-762 299 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

A COMPARATIVE EVALUATION OF THE EFFECTIVENESS OF BACTERIA TRAPS USING AN OBJECTIVE METHOD FOR DETERMINING THE CONCENTRATION OF A BACTERIAL AEROSOL. (U)

JUN 73 9P KIKTENKO,V. S. (KUDRYAVTSEV, S. I. (PUSHCHIN,N. I. (

RPPT. NO. FTD-HT-23-0526-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF RANG. VOPROSY SANITARNOI BAKTERIOLOGII O VIRUSOLOGII. N.P., 1968 P109-113. BY VICTOR HERRNZEFF.

DESCRIPTORS: (•BACTERIAL AEROSOLS, •SAMPLERS); QUANTITATIVE ANALYSIS, AEROSOLS, EFFECTIVENESS, PARTICLES, MEASUREMENT, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE METHODS USED BY VARIOUS AUTHORS TO DETERMINE THE EFFECTIVENESS OF THE BACTERIA TRAPS BASED ON THE SEDIMENTATION AND FILTRATION PRINCIPLE RELY ON SUBJECTIVE METHODS OF ESTIMATION, WHICH AFFECTS THE ACCURACY OF THE OBTAINED RESULTS. AN OBJECTIVE METHOD IS PROPOSED FOR ESTIMATING THE EFFECTIVENESS OF THE BACTERIA TRAPS, USING THE PHOTOELECTRONIC PARTICLE COUNTER WHICH ENABLES ONE TO DETERMINE THE TRAPS PROPERTY OF DEVICES TAKING INTO ACCOUNT THE CONCENTRATION OF THE BACTERIAL AEROSOL PARTICLES DURING SAMPLING. (U)

AD-770 862 6/13 6/9 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING THEM IN SANITATION MICROBIOLOGY. (U)

NOV 73 201P KIKTENKO,V. S. (KUDRYAVTSEV, S. I. (CHUGUNOV,N. I. (PUSHCHIN,N. I. (

RPPT. NO. FTD-HT-24-497-73
PROJ: FTD-T74-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. BAKTERIALNYE AEROZOLI I METODY IKH ISSLEDOVANIYA V SANITARNOI MIKROBIOLOGII. MOSCOW, 1968 P1-171. BY DEAN F. W. KOCLECK.

DESCRIPTORS: •BACTERIAL AEROSOLS, •AIR POLLUTION, MICROORGANISMS, TRANSLATIONS, SANITATION, INFECTIONS, PUBLIC HEALTH, INDUSTRIAL MEDICINE, SAMPLERS, INSTRUMENTATION, USSR (U)

(CONTENTS: BACTERIAL AEROSOLS AND THEIR SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE; GENERAL METHODS AND PRINCIPLES FOR DETERMINING CONCENTRATIONS AND DISPERSIONS OF AEROSOL PARTICLES; INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL INVESTIGATION OF AIR. (U)

AD-896 640L 15/2
RUNWAY PROVING GROUND UTAH

SELECTION OF SAMPLE MATERIALS FOR EVALUATING BIOHAZARD OF NEW PROTECTIVE SUITS. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
JAN 68 9P REES,H. R. , JR.;LEE, ROBERT E. ;COLANTO,EMELDA I
REPT. NO. DPG-TN-68-3

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 21 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDA-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*PROTECTIVE CLOTHING, *BACTERIAL AEROSOLS), (*BACILLUS SUBTILIS), (*SAMPLERS), LEAKAGE(FLUID), PENETRATION, ASBESTOS, CELLULOSE, ENVIRONMENTAL TESTS, TEST EQUIPMENT, SAMPLING, TEXTILES, SPORES, TOXICITY, ADHESIVES, GELATINS, BIOLOGICAL WARFARE AGENTS, VIABILITY, RECOVERY, COLLECTING METHODS (U)
IDENTIFIERS: BACILLUS SUBTILIS NIGER STRAIN, U/A REPORTS (U)

A STUDY WAS DESIGNED TO SELECT A SUITABLE MATERIAL FOR EVALUATING LEAKAGE OF NEW PROTECTIVE SUITS WHEN CHALLENGED WITH BACILLUS SUBTILIS VAR. NIGER. ADHESIVE PATCHES USED ON PREVIOUS TESTS WERE FOUND TO BE TOXIC TO THIS ORGANISM, AND THE LOW RECOVERY (6.9%) PROMPTED THE SEARCH FOR A MORE SUITABLE MATERIAL. ASBESTOS PADS GAVE THE GREATEST RECOVERY OF THE MATERIALS TESTED. CELLULOSE PADS PROVIDED SATISFACTORY RECOVERY AND WOULD BE AN ACCEPTABLE MATERIAL. A METHOD OF ATTACHING THE PADS TO SKIN AND CLOTHING WOULD HAVE TO BE DEVISED. (AUTHOR) (U)

AD-689 102 6/5
NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION OF MICROBIAL CONCENTRATION IN AIR OF DENTAL OPERATING ROOMS BY HEPA FILTRATION. (U)

JAN 69 13P PELLEU,G. J. , JR.;SHREVE, W. B. ;WACHTEL,L. W. ;
REPT. NO. NAS-TR-008
PROJ: MR.005.19-6001

UNCLASSIFIED REPORT

DESCRIPTORS: (*DENTISTRY, *BACTERIAL AEROSOLS), AIRBORNE, MICROORGANISMS, INFECTIONS, SAMPLERS, GAS FILTERS, MEASUREMENT (U)
IDENTIFIERS: FILTRATION, HEPA FILTERS (U)

MICROBIAL AEROSOLS ARE KNOWN TO BE CREATED AND DISSEMINATED IN DENTAL OPERATING ROOMS (DOR'S) IN QUANTITIES SUFFICIENT TO RAISE THE POSSIBILITY OF CROSS INFECTION. THE PURPOSE OF THIS STUDY WAS TO EVALUATE THE EFFECTIVENESS OF HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTERS IN REDUCING THE CONCENTRATION OF AIR-BORNE MICROORGANISMS. TEST WERE MADE IN DOR'S OF 1400-, 1800-, AND 3240-CU FT CAPACITY WITH AN 800-CFM HEPA FILTER UNIT. CONCENTRATIONS OF MICROORGANISMS WERE MEASURED 4 TIMES DAILY AT APPROXIMATELY 9- TO 3-HOUR INTERVALS. SAMPLES WERE TAKEN IN EACH DOR WITH 1-HOUR REYNIERS AIR SAMPLERS DRAWING 1 CFM FOR 2 WEEKS WITHOUT AIR FILTRATION AND THEN FOR 2 WEEKS WITH AIR FILTRATION. IN A DOR USED FOR ROUTINE SCALING WITH AN ULTRASONIC INSTRUMENT, THE MEAN MICROBIAL AIR COUNT OF 21 VIABLE PARTICLES (VP)/CU FT WITHOUT AIR FILTRATION WAS REDUCED 90 PERCENT WHEN THE AIR WAS FILTERED. IN THIS DOR, PEAK RECOVERIES OF 185 VP/CU FT WITHOUT AIR FILTRATION WERE REDUCED 84 PERCENT WHEN THE AIR WAS FILTERED. BACTERIA RECOVERED DURING PEAK PERIODS WERE PREDOMINANTLY ALPHA-HEMOLYTIC STREPTOCOCCI OF THE VIRIDANS GROUP. IN TWO DOR'S USED ONLY FOR ROUTINE OPERATIVE DENTISTRY, MICROBIAL AIR COUNTS WERE LOWER, WITH MEAN VALUES OF 3-8 VP/CU FT AND PEAK VALUES OF 8-26 VP/CU FT WITHOUT AIR FILTRATION. THESE CONCENTRATIONS WERE REDUCED 65 PERCENT WHEN THE AIR WAS FILTERED. IT WAS CONCLUDED THAT UNDER NORMAL WORKING CONDITIONS AN 800-CFM HEPA FILTER UNIT IS EFFECTIVE IN REDUCING THE CONCENTRATION OF AIRBORNE MICROORGANISMS IN A DOR BY ABOUT 70 PERCENT. (AUTHOR) (U)

AD-894 561L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

AEROSOLS DISSEMINATED IN A FOG CHAMBER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 75P HARRISON,JOHN H. I
REPT. NO. DTC-FR-71-137, DTC-TEST-R-137
PROJ: RDT/E-1-X-665709-0L-11, USATECOM-S-CO-973-
933-002

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; APR 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERET TEST CENTER, FORT DOUGLAS, UTAH
84113.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DISTRIBUTION),
(*CLOUD CHAMBERS, BACTERIAL AEROSOLS), FOG, BACILLUS
SUBTILIS, FLUORESCENCE, PHYSICAL PROPERTIES, SAMPLING,
NUCLEATION, SAMPLERS, DROPS, PARTICLE SIZE,
DISTRIBUTION, RESPIRATION, LUNG, INFECTIONS, RECOVERY,
BIOASSAY, VISIBILITY, CONCENTRATION(CHEMISTRY), POWDERS,
PARTICLES, LIQUIDS, EFFECTIVENESS, DEGRADATION (U)
IDENTIFIERS: AEROSOL PARAMETERS, COASTAL FOGS, DECAY
RATE, FLUORESCENT PARTICLES, INLAND FOGS, SLURRY
AGENTS (U)

THE EFFECT OF FOG ON AEROSOLS IN A 600,000 LITER
CHAMBER WAS STUDIED. A LIQUID SLURRY OF 'BACILLUS
SUBTILIS' (BG) AND FLUORESCENT PARTICLES (FP)
WERE DISSEMINATED IN SEPARATE TRIALS INTO
ARTIFICIALLY CREATED FOGS SIMULATING EITHER ADVECTION
OR RADIATION FOGS. IN BOTH TYPES OF FOG, THE BG
REMAINED IN LARGE DROPLETS WHICH SETTLED MUCH MORE
QUICKLY THAN IN THE NONFOG CONTROL CONDITION. A
SIGNIFICANT PORTION OF THE FP WAS SCAVENGED BY BOTH
TYPES OF FOG. THE DEGREE OF SCAVENGING WAS GREATER
THAN EXPECTED BY COLLISION PROCESS THEORY. THE
SCAVENGING INCREASED THE EFFECTIVE SIZE OF THE FP.
IT WAS CONCLUDED THAT AEROSOLIZATION OF EITHER A
LIQUID OR A DRY MATERIAL IN A CHAMBER-FOG ENVIRONMENT
GREATLY REDUCES THE AMOUNT OF MATERIAL WHICH WOULD
PENETRATE TO THE HUMAN LUNG IF INHALED, THE REDUCTION
BEING GREATER FOR LIQUID AEROSOLS. AEROSOLS WERE
STUDIED OVER AN AGE OF 28 MINUTES. MICROPHYSICAL
PARAMETERS OF THE FOG WHICH WERE STUDIED WERE
VISIBILITY, DROP CONCENTRATION, LIQUID WATER CONTENT,
AND DROPLET DIAMETER. (AUTHOR) (U)

AD-920 015L 15/2 17/8
BENDIX CORP BALTIMORE MD ENVIRONMENTAL SCIENCE DIV

DEVELOPMENT OF A CHEMILUMINESCENCE
DETECTOR. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NOV 73-JAN 74,
FEB 74 93P WELLS,HENRY S. , JR.
REPT. NO. EIR-1010
CONTRACT: DAAA15-73-C-0011
PROJ: DA-1-W-763720-D-165
TASK: 1-W-763720-D-16501
MONITOR: ED CR-74012

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; 3 JUN 74. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, EDGEWOOD
ARSENAL, ATTN: SAREA-TS-R, ABERDEEN
PROVING GROUND, MD. 21010;

DESCRIPTORS: (*CHEMILUMINESCENCE, DETECTORS),
(*BIOLOGICAL AEROSOLS, *DETECTORS), (*TOXIC
AGENT ALARMS, CHEMILUMINESCENCE), BREADBOARD
MODELS, PROTOTYPES, PRODUCTION ENGINEERING,
RELIABILITY, MAINTAINABILITY, HUMAN FACTORS
ENGINEERING, PERFORMANCE(ENGINEERING), COOLING,
MODIFICATION KITS, SYSTEMS ENGINEERING, PUMPS,
COLLECTING METHODS, PHTHALIC ACIDS, AIR,
SAMPLERS, IMPURITIES, ADDITIVES,
SOLUTIONS(MIXTURES), FIELD TESTS, BACKGROUND,
ABSORPTION SPECTRA, ULTRAVIOLET RADIATION,
LUMINESCENCE, TAPES (U)
IDENTIFIERS: LUMINOL (U)

THIS REPORT DESCRIBES FIELD TESTING OF PHASE II
PROTOTYPE DETECTORS, DEVELOPMENT OF A DESIGN FOR A
SMALLER REFILL KIT, REFINEMENT OF COMPONENT DESIGNS,
PROCUREMENT AND PRELIMINARY TESTING OF NEW COLLECTOR-
CONCENTRATORS, PROCUREMENT AND FABRICATION OF PARTS
AND SUBASSEMBLIES FOR PHASE III DETECTORS,
SUPPORT SERVICES DATA AND CONCLUSIONS ARE INCLUDED.
(AUTHOR) (U)

AD-473 204 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

BACTERIAL SAMPLERS. (U)

JUL 65 14P BECHHENSKII,S. I
REPT. NO. TRANS-238

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MOLSHAYA MEDITSINSKAYA ENTSIKLOPEDIYA (USSR) V3 P248-254 1957. BY ELOON E. EWING.

DESCRIPTORS: (*BACTERIAL AEROSOLS, SAMPLERS); MOLECULAR WEIGHT, PARTICLE SIZE, SEDIMENTATION, CENTRIFUGES, CULTURE MEDIA, LABORATORY EQUIPMENT, FLUID FILTERS, REVIEWS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PAPER IS COMPRISED OF A TRANSLATION OF A REVIEW ARTICLE FROM THE GREAT MEDICAL ENCYCLOPEDIA, 2ND ED., 1957. (U)

212

AD-848 570 16/2 19/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-SAMPLING DEVICES. (U)

JAN 69 30P CURTIS,JOHN J. I
REPT. NO. SMUFD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, AEROSOLS); (*AEROSOLS, SAMPLERS); PARTICLES, BACTERIAL AEROSOLS, ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE, FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA, EGGS (U)
IDENTIFIERS: EVALUATION, *PEEP(POROUS ELECTRODE ELECTROSTATIC PRECIPITATOR) (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES. BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS, ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES. (AUTHOR) (U)

B-806 615 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE VIRUS COLLECTION. (U)

ESCRIPTIVE NOTE: FINAL REPT.,
DEC. 65 122P RUHNKE,L. H. (PRINS,M.)
EPT. NO. 2911
ONTRACT: DA-18-064-AMC-229(A)
ROJ: DA-52906

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

ESCRIPTORS: (*SAMPLERS, PARTICLE SIZE), (*VIRUSES, AIRBORNE), (*PARTICLES, CLASSIFICATION), INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS, ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, IONS, COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR POLLUTION, ELECTRON MICROSCOPY, TABLES(DATA), SAMPLING, DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY, MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY, CALCULATION OF INSTRUMENT DIMENSIONS, OPERATIONAL CONSIDERATIONS, MEASUREMENTS, DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-789 813 7/9 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING SO2, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,
AUG 79 22P DEE,L. A. (HARTENS,H. H. (NAKAMURA,J. T.)
REPT. NO. AFRPL-TR-79-59
PROJ: EPA-800CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE, *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE OXIDES, LITHIUM CARBONATES, *AIR POLLUTION DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE (SIF4) USING THE SOLID SORBENT TECHNIQUE WAS INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN. SORBENTS INCLUDED LI2CO3, PBO2, AND MNO2. (U)

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM AERIAL LINE SOURCES. (U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FREGE,JAMES E. ;
REPT. NO. EPG-DR-8502-8
PROJ: RDT/E-1-8-035001-A-128, USATECOM-8-8-9955-28

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDA-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DISTRIBUTION), (*BACTERIAL AEROSOLS), (*AEROSOL GENERATORS), AIRBORNE, DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE, TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING, UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE, AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION, ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS (U)
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT PIGMENT PARTICLES, FLUORESCENT PARTICLES, FPIFLUORESCENT PIGMENT), FP DISSEMINATORS MODEL D, GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE FILTERS, ROTOROD SAMPLERS, SKIL BLOWERS, U/A REPORTS, U-6 AIRCRAFT, U-9B AIRCRAFT, U-6A AIRCRAFT, U-8 AIRCRAFT, VERTICAL GRIDS, WINDSOR SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND SPECIFIED RELEASE HEIGHTS (A502, PHASE A), THE SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS AND RELEASE HEIGHTS (A502, PHASE B). UPON COMPLETION OF FOURTEEN TRIALS UNDER PHASE B, THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL DESTRUCTION OF NONREPLACEABLE TEST APPARATUS PREMATURELY TERMINATED TESTING. THE SUCCESSFUL TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE RELEASES OF FLUORESCENT PIGMENT (FP) PARTICLES. SAMPLING WAS PERFORMED AT GROUND LEVEL TO A DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-896 319L 15/2 13/13
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL; XM51. (U)

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 95P MARTIN,DONALD E. ; MARABLE, LARRY C. ;
REPT. NO. DPG-DR-9823
PROJ: RDT/E-1-8-693606-D-017, USATECOM-8-6-6242-11
TASK: 1-8-693606-D-01709

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDA-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SHELTERS), (*BIOLOGICAL WARFARE AGENTS, SAFETY DEVICES), (*BACTERIAL AEROSOLS, RECOVERY), (*BACILLUS SUBTILIS), (*SERRATIA MARCESCENS), SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION, COUNTERMEASURES, SAMPLING, CONCENTRATION(CHEMISTRY), INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY, DECONTAMINATION (U)
IDENTIFIERS: AEROSOL RECOVERY, AGI(ALL GLASS IMPINGERS), AIRLOCK STRUCTURES, ALL GLASS IMPINGERS, BG AGENTS, A-873 BIOLOGICAL CHALLENGERS, CHALLENGE AEROSOLS, *PROTECTION, COLLISION DISSEMINATORS, FIELD ACTIVITIES, M-101 TRAILERS(3/4-TON), XM-51 PROTECTIVE SHELTERS, REYNIER SAMPLER, TOXIC AGENT SIMULANTS, U/A REPORTS, XM-51 COLLECTIVE PROTECT (U)

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE PROTECTION CHEMICAL-BIOLOGICAL; XM51 WAS PERFORMED IN ORDER TO DETERMINE THE DEGREE OF PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL AGENTS. TWO TRIALS WERE CONDUCTED IN LATE FEBRUARY 1968 AT DUGWAY PROVING GROUND (DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT AGENTS 'BACILLUS SUBTILIS' VAR. 'NIGER' (BG) AND 'SERRATIA MARCESCENS' (SM) WERE USED TO PRODUCE THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY MEANS OF ALL-GLASS IMPINGERS (AGI) AND REYNIERS SAMPLERS. THESE RECOVERIES WERE THEN COMPARED WITH THE SCHEDULE OF ACTIVITIES AND STATISTICALLY ANALYZED.

AD-492 320 19/2 9/2
METRONICS ASSOCIATES INC PALO ALTO CALIF AEROSOL LAB

STUDIES ON THE PERFORMANCE OF THE ROTOROD FP SAMPLER. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
JUN 65 77P GRINNELL,S. W. ;WEBSTER,F. X. ;BROWN,T. S. ;
REPT. NO: MA-21(R)-3
CONTRACT: DA-42-007-AMC-21(R)

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRACER STUDIES, ATMOSPHERES), (*AEROSOLS, SAMPLERS), (*SAMPLERS, EFFICIENCY), FLUORESCENCE, PARTICLE SIZE, IMPACT, DOSAGE, AIR FILTERS, MEMBRANES, RODS, COATINGS, ADHESION, EXPERIMENTAL DATA, ERRORS, COLLECTING METHODS, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: PARTICLE SIZE, STANDARD DEVIATION (U)

215

BECAUSE OF ITS HIGH VOLUME SAMPLING RATE AND LOW POWER REQUIREMENTS, THE ROTOROD SAMPLER OFFERS SEVERAL ADVANTAGES OVER USE OF THE MEMBRANE FILTER IN FP (FLUORESCENT PARTICULATE) AIR TRACER STUDIES, BUT THE IMPACTION PROCESS IS NOT 100% EFFICIENT IN THE FP SIZE RANGES NOW EMPLOYED. HOWEVER, DATA PRESENTED IN THIS REPORT SHOW THAT WHEN APPARENT DOSAGES FROM ROTOROD SAMPLING ARE CORRECTED FOR THE AVERAGE EFFICIENCY OBTAINED FROM A GIVEN LOT OF FP, THE DOSAGES OBTAINED ARE CONSISTED WITH THOSE OBTAINED FROM CLOSELY ADJACENT MEMBRANE FILTERS EXPOSED TO THE SAME FP CLOUD. IN THE 164 COMPARISONS REPORTED STANDARD DEVIATIONS RANGE FROM 6% TO 10%, AND IMPROVED EXPERIMENTAL CONDITIONS WOULD PROBABLY INDICATE CONSIDERABLY SMALLER DEVIATION. EFFICIENCIES WITH TWO DIFFERENT ROD-COATING METHODS ARE ALIKE WITHIN ABOUT 3%, AND NO SIGNIFICANT DIFFERENCE IN EFFICIENCY WAS FOUND BETWEEN ROTORODS ORIENTED IN THE STANDARD VERTICAL POSITION AND THOSE ORIENTED HORIZONTALLY. THE RELATIONSHIP BETWEEN PARTICLE SIZE DISTRIBUTION PARAMETERS AND ROTOROD EFFICIENCIES IS DISCUSSED. (AUTHOR) (U)

AD-869 912L 15/2 19/2
DESERET TEST CENTER DUGWAY PROVING GROUND UTAH CHEMICAL DIV

AIR FLOW-PRESSURE DROP EFFECTS IN THE SNOOT SAMPLER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 69 22P LACY,BENNIE ;DIETZ,JAMES F. ;SNOWDEN,JAMES E. ;
PROJ: RDT/E-1-X-665709-D-634, USATECOM-5-CO-483-000-011
MONITOR: DTC TC-34

UNCLASSIFIED REPORT
DISTRIBUTION: USGO; OTHERS TO COMMANDING GENERAL, DESERET TEST CENTER, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*CHEMICAL WARFARE AGENTS, AIR POLLUTION), (*BIOLOGICAL WARFARE AGENTS, AIR POLLUTION), (*SAMPLERS, PERFORMANCE(ENGINEERING)), AEROSOLS, AIR FILTERS, PARTICLES, SAMPLING, PERMEABILITY, ANOMALIES, TEST METHODS (U)
IDENTIFIERS: SNOOT SAMPLERS (U)

THE AIR FLOW-PRESSURE DROP RELATIONSHIP IN THE SNOOT SAMPLER CAN BE UTILIZED TO ASSURE CONSISTENT PERFORMANCE OF THE SAMPLER. A METHOD IS DESCRIBED TO TEST THE SAMPLING DEVICE BEFORE AND AFTER FIELD OPERATIONS. PRE-FIELD TEST MEASUREMENTS ESTABLISH THE LEAK-PROOF PERFORMANCE INDEX OF THE SAMPLER, WHILE POST-FIELD TEST MEASUREMENTS REVEAL THE EXTENT THAT THE SAMPLER CAN BE HANDLED AND YET MAINTAIN THE DESIGNED PERFORMANCE GOALS. A LINEAR RELATIONSHIP WAS FOUND BETWEEN PRESSURE DROP ACROSS THE ASSEMBLED SNOOT SAMPLER AND THE FLOW RATE THROUGH THE SAMPLER. OVER THE FLOW RATE RANGE FROM 3 TO 12.6 LITERS PER MINUTE, AN AVERAGE PRESSURE DROP OF 4.3 INCHES OF WATER WAS FOUND FOR EACH LITER PER MINUTE OF AIR FLOW RATE. (AUTHOR) (U)

AD-894 548L 15/2
DUGWAY PROVING GROUND UTAH

RESEARCH TEST OF OPERATING CONDITIONS FOR THE ALL-GLASS 6-15 IMPINGER AT LOW TEMPERATURES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 65 24P WILBURN,RICHARD I;GAUTHIER, DAVID A. I
REPT. NO. DPG-R-3-627
PROJ: 8A-1-X-650212-D-619; USATECOM-5-3-9051-18

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 19 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEDC-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SAMPLERS), (*BACTERIAL AEROSOLS), (*BACILLUS SUBTILIS), BIOLOGICAL WARFARE AGENTS, GLASS, COLD WEATHER TESTS, SOLUTIONS(MIXTURES), COLLECTING METHODS, MILK, GELATINS, PHOSPHATES, AMINO ACIDS, GLYCEROLS (U)
IDENTIFIERS: *ALL GLASS 6-15 IMPINGERS, *ALL GLASS IMPINGERS, CYSTEINE, FIELD ACTIVITIES, NIGHT TRAIN PROJECT, SPERMIDINE, M/A REPORTS (U)

THE RESEARCH TESTS FOR THE 'NIGHT TRAIN SUPPORT' COLD WEATHER REPORT, USATECOM PROJECT NO. 5-3-9051-18 WERE CONDUCTED BY BIOLOGICAL DIVISION, TEST OPERATIONS DIRECTORATE, DUGWAY PROVING GROUND (DPG). THE EXPERIMENTS WERE DESIGNED TO DETERMINE OPTIMAL OPERATING CONDITIONS FOR THE COLLECTION OF BG IN THE ALL-GLASS 6-15 IMPINGER AT TEMPERATURES RANGING FROM 50 F TO -35 F. PARAMETERS STUDIED WERE COMPOSITION AND TEMPERATURE OF IMPINGER FLUIDS, EFFECT OF ASPIRATION TIME, AND TEMPERATURE AT WHICH THE AEROSOL WAS DISSEMINATED. IT WAS FOUND THAT GMP (GELATIN, SKIMMED MILK SOLIDS, POTASSIUM PHOSPHATE BUFFER, CYSTEINE, AND SPERMIDINE) AS THE FLUID IN IMPINGERS HELD AT ABOUT 32 F TO 50 F IS SATISFACTORY FOR COLLECTION OF BG FROM AEROSOLS AT LOW TEMPERATURES. THE COLD WEATHER SAMPLER WILL PREVENT FREEZING OF IMPINGER FLUID DURING ASPIRATION AT -90 F. THEREFORE, IT PERMITS USE OF ALL-GLASS 6-15 IMPINGERS UNDER THOSE CONDITIONS, AND IS RECOMMENDED FOR THAT PURPOSE. (AUTHOR) (U)

AD-796 224 6/13 19/2
ARMY TEST AND EVALUATION COMMAND ABERDEEN PROVING GROUND MD

MICROBIOLOGICAL AIR SAMPLING IN THE TROPICS. (U)

DESCRIPTIVE NOTE: FINAL REPT. ON TEST OPERATIONS PROCEDURE,
MAR 71 10P
REPT. NO. TOP-8-2-519
PROJ: AMCR-310-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*TROPICAL TESTS, SAMPLERS), (*MICROORGANISMS, SAMPLING), CALIBRATION, VACUUM PUMPS, ORIFICES, AIR FILTERS, COUNTING METHODS, PERIODIC VARIATIONS (U)
IDENTIFIERS: *COMMON ENGINEERING TEST PROCEDURES (U)

THE REPORT DESCRIBES A METHOD FOR QUALITATIVELY AND QUANTITATIVELY ESTIMATING AIRBORNE MICROORGANISMS IN A TROPICAL ENVIRONMENT. IT IDENTIFIES AND DESCRIBES FACILITIES AND EQUIPMENT REQUIRED. IT PROVIDES PROCEDURES FOR CALIBRATION OF AIRFLOW THROUGH MEMBRANE FILTER, AIR SAMPLING, SAMPLE PREPARATION, AND MICROORGANISM COUNTING AND IDENTIFICATION. (AUTHOR) (U)

AD-904 919 15/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

MODIFICATION OF A LARGE VOLUME AIR SAMPLER (CYCLONE SCRUBBER). (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
AUG 72 30P HADLEY,D. J. ;DAVIES,D. F. ;SMITH,L. A. ;
REPT. NO. DRES-TN-311

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: ABSTRACT IN FRENCH.

DESCRIPTORS: (*SAMPLERS, *GAS DETECTORS); (*BACTERIAL AEROSOLS, SAMPLERS); DETECTION, BIOLOGICAL WARFARE AGENTS, PARTICLE SIZE, DISTRIBUTION, COLLECTING METHODS, SERRATIA MARCESCENS, BACILLUS SUBTILIS, ESCHERICHIA COLI, AEROBACTER AEROGENES, GAS FLOW, TOLERANCES(MECHANICS), STERILIZATION, AUTOMATION, CONCENTRATION(CHEMISTRY), DIAGRAMS, OPERATION, CONSTRUCTION, MECHANICAL DRAWINGS, AEROBIOLOGY, CANADA(U)
IDENTIFIERS: COLLECTION FLUIDS, CYCLONE SCRUBBERS, LARGE VOLUME AIR SAMPLERS, SCRUBBERS (U)

THE CONSTRUCTION AND SUBSEQUENT MODIFICATION OF A LARGE VOLUME AIR SAMPLER (CYCLONE SCRUBBER) FROM BLUEPRINTS OBTAINED FROM THE U.S. ARMY BIOLOGICAL DEFENCE RESEARCH LABORATORY, FORT DETRICK, MD. IS REPORTED. THE INSTRUMENT SAMPLES AIR AT THE RATE OF 780 LITRES PER MINUTE AND IS CAPABLE OF COLLECTING AIRBORNE PARTICLES IN THE 1 TO 6 MICRON SIZE RANGE. AIRBORNE PARTICLES ARE CONCENTRATED, IN A SMALL CYCLONE CHAMBER, INTO A FEW MILLILITRES OF COLLECTION FLUID. PRODUCTION OF THE SAMPLER FROM SEVERAL DIFFERENT MATERIALS IS DESCRIBED AS IS THE PROCEDURE FOR OPERATIONAL DECONTAMINATION OF THE INSTRUMENT. BLUEPRINTS ARE INCLUDED. (AUTHOR) (U)

AD-898 534 6/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

METHODS FOR THE DETECTION OF AIRBORNE MICROORGANISMS. (U)

MAY 68 24P BOVALLIUS,AKE ;BUCHT,BENGT ; CASPERSSON,TORBJORN ;LUNDIN,JOHAN ;SITZEN, MARTIN ;
REPT. NO. TRANS-7258

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE COPIES ONLY.
SUPPLEMENTARY NOTE: TRANS. OF FORSVARSMEDICIN (SWEDEN) V4 N2 P85-96 1968.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DETECTION), SAMPLERS, NUCLEIC ACIDS, ACRIDINES, BIOLOGICAL STAINS, CULTURE MEDIA, ELECTRON MICROSCOPY, BIOLOGICAL CONTAMINATION, COLLECTING METHODS, PARTICLE SIZE, DESIGN, FLUORESCENCE, SWEDEN (U)
IDENTIFIERS: TRANSLATIONS (U)

THE REPORT SUMMARIZES PRELIMINARY STUDIES OF METHODS FOR DETECTING MICROORGANISMS IN THE AIR AND THE USABILITY OF THESE METHODS IN FIELD STUDIES CONCERNING THE NATURAL CONTENT OF MICROORGANISMS AND OTHER PARTICLES IN AIR. (AUTHOR) (U)

AD-912 793L 15/2
ENVIRO CONTROL INC ROCKVILLE MD

MOBILE DETECTION OF BIOLOGICAL ATTACK. PHASE II THEORETICAL STUDY. (U)

DESCRIPTIVE NOTE: INTERIM REPT. JUL 72-FEB 73. APR 73 218P MORTON,JOHN D. ISPREY, PIERRE M. I
CONTRACT: DAAA15-72-C-0367
PROJ: DA-1-W-762710-AD-34
TASK: 1-W-762710-AD-3402

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 31 AUG 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, ABERDEEN PROVING GROUND, MD. 21010.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, DETECTION), (*BACTERIAL AEROSOLS, *GAS DETECTORS), WARNING SYSTEMS, MOBILE, AIRBORNE, TRANSPORTATION, PALLETS, CHEMILUMINESCENCE, PARTICLES, WIND, MICROMETEOROLOGY, NIGHT SKY, THREAT EVALUATION, HELICOPTERS, OBSERVATION AIRCRAFT, INSURGENCY, BIOLOGICAL WARFARE, AREA COVERAGE, DISTRIBUTION, MONITORS, SAMPLING, TERRAIN, ATMOSPHERIC MOTION, ENVIRONMENTAL TESTS, COSTS, FEASIBILITY STUDIES (U)
IDENTIFIERS: AIRCRAFT, LIGHTWEIGHT, LINE SOURCE DISSEMINATION, PARTICHROME, SCENARIOS (U)

A STUDY WAS MADE OF THE EFFECTS OF BIO-DETECTOR MOBILITY ON OFFENSE AGAINST BIOLOGICAL AEROSOL CLOUDS. MOBILITY INCLUDES (1) DETECTION WHILE ON THE MOVE AND (2) TRANSPORTABILITY FOR STATIC OPERATION. THREATS WERE IDENTIFIED AND THEIR DIMENSIONS AND MOVEMENTS CALCULATED. THE CAPABILITY OF MOBILE DETECTION WAS TESTED THEORETICALLY AGAINST THESE THREATS. FIRST USING ASSUMED DETECTOR CHARACTERISTICS AND THEN THOSE OF PROTOTYPE CHEMILUMINESCENCE AND PARTICHROME DETECTORS. OUTSTANDING ADVANTAGES FOR A DETECTOR OPERATING IN AN AIRCRAFT INCLUDE ELEVATED SEARCH FOR EARLIER AND MORE SENSITIVE DETECTION, ABILITY TO MOVE OVER ANY TERRAIN, AND PROBABLE REDUCTION OF BACKGROUND INTERFERENCE. A TRANSPORTABLE GROUND-BASED DETECTOR HAS STRONG POTENTIAL IN FLEXIBLE ADAPTATION TO CHANGING REQUIREMENTS. THE REPORT RECOMMENDS FIELD TESTING OF AN AIRBORNE PROTOTYPE TO TEST THE GENERAL PRINCIPLE, AND DEVELOPMENT OF A PALLETIZED PACKAGE FOR AIR AND GROUND DEPLOYMENT. (AUTHOR) (U)

AD-896 630L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

A COMPARISON OF RECOVERY OF PILOT PLANT BG AND BIOFERM BG AFTER AEROSOLIZATION, COLLECTION, ASPIRATION AND HOLDING. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE. JAN 70 11P HAYES,D. K. I
REPT. NO. DTC-TB-92

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 21 SEP 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, ATTN: STEPD-TT-JP-(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DISTRIBUTION), (*BACILLUS SUBTILIS), COLLECTING METHODS, SAMPLERS, RECOVERY, PILOT PLANTS, INDUSTRIAL PLANTS, CULTURE MEDIA, SAMPLING, FREEZING, AGING(PHYSIOLOGY), VIABILITY, SENSITIVITY, INTERFACIAL TENSION, SURFACE ACTIVE SUBSTANCES, ANALYSIS OF VARIANCE, BIOLOGICAL WARFARE AGENTS, ATOMIZATION, PARTICLE SIZE, DISTRIBUTION, HEATING, CONTAINERS (U)
IDENTIFIERS: ASPIRATION, COLLECTING FLUIDS, FIELD ACTIVITIES, GELATIN MILK PHOSPHATE CULTURE MEDIA, SHOESTRING BIOLOGICAL SLURRIES, SLURRY AGENTS, U/A REPORTS (U)

THE OBJECTIVE OF THIS STUDY WAS TO DETERMINE IF BG DERIVED FROM TWO DIFFERENT SOURCES BEHAVED IN A SIMILAR MANNER WHEN EXPOSED TO ASPIRATION, AEROSOLIZATION AND HOLDING. FEW DIFFERENCES WERE OBSERVED AMONG RECOVERIES IN GMP, SYN AND GMP GLYCEROL OF BG PREPARED FROM FROZEN BIOFERM SHOESTRING, AEROSOLIZED, ASPIRATED 60 MINUTES AND HELD FOR 24 HOURS. LARGE DIFFERENCES WERE OBSERVED IN RECOVERIES IN GMP AND SYN VARIATIONS OF THESE TWO FLUIDS WHEN AN OLDER BG PRODUCT WAS TREATED IN THE SAME MANNER. (U)

AD-909 730L 21/5 21/2 7/4
NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION TECHNOLOGY AND PROJECT ENGINEERING DEPT

EVALUATION OF ISOKINETIC AND ANISOKINETIC SAMPLING EFFECTS ON SMOKE NUMBER DETERMINATION AND A COMPARISON OF NAVY AND SAE SMOKE NUMBERS. (u)

DESCRIPTIVE NOTE: PHASE REPT.,
MAR 73 25P KLARMAN,ANTHONY F. (ROLLO, ANTHONY J.)
REPT. NO. NAPTC-PE-4

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; MAR 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL AIR PROPULSION TEST CENTER, TRENTON, N. J. 08628.

DESCRIPTORS: (*SMOKE, *GAS TURBINES); (*TURBOJET ENGINES, SMOKE); AIR POLLUTION, REDUCTION, SAMPLING, MEASUREMENT, PARTICLE SIZE, PORTABLE EQUIPMENT, INSTRUMENTATION, PROBES, EXHAUST GASES, COMBUSTION (u)
IDENTIFIERS: *ANISOKINETIC SAMPLING, *ISOKINETIC SAMPLING, J-57 ENGINES, *SMOKE SAMPLING, *SMOKE NUMBERS (u)

NAVY SMOKE NUMBERS WERE OBTAINED FOR A J57 GAS TURBINE ENGINE AT VARIOUS POWER LEVELS BOTH ISOKINETICALLY AND ANISOKINETICALLY. THE SMOKE NUMBERS WERE EVALUATED AND JUDGED TO BE INDEPENDENT OF THE SAMPLING PROCEDURE USED. THREE SAMPLING LINE SIZES WERE INVESTIGATED AND FOUND TO HAVE NO EFFECT ON SMOKE NUMBERS. A COMPARISON OF NAVY AND SAE SMOKE SAMPLING METHODS WAS MADE AND A CORRELATION OF SMOKE NUMBERS WAS OBTAINED FOR THREE GAS TURBINE ENGINES TESTED. A PORTABLE SMOKE SAMPLING CONSOLE WAS BUILT AND TESTED. (AUTHOR) (u)

AD-921 213L 15/2
DUGWAY PROVING GROUND UTAH

COST EFFECTIVENESS STUDY OF BIOLOGICAL DETECTOR SYSTEM. (u)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,
JUL 74 134P SUYAMA,ROBERT M. (VALEK, RAYMOND D.)
REPT. NO. DPG-SS-C410A
PROJ: RDT/E-1-W-762711-AD-34, USATECOM-S-CO-513-000-001

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; JUL 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, DUGWAY PROVING GROUND, DUGWAY, UTAH 84022.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, *WARNING SYSTEMS); DETECTION, DETECTORS, FIELD CONDITIONS, COST EFFECTIVENESS, COMPUTERS, DATA PROCESSING, BIOLOGICAL WARFARE CASUALTIES, MODEL TESTS, SIMULATION, BIOLOGICAL WARFARE, BIOLOGICAL AEROSOLS, CHEMILUMINESCENCE, ARRAYS, LIFE EXPECTANCY, MAINTENANCE, COSTS, MATHEMATICAL MODELS, ARMY PERSONNEL, INFANTRY, DIFFUSION, DEPLOYMENT, COMMUNICATION AND RADIO SYSTEMS (u)
IDENTIFIERS: XM-19 AGENT DETECTORS, M-19 AGENTS DETECTORS, XM-2 SAMPLERS, M-2 SAMPLERS, DISSEMINATION (u)

THE COST EFFECTIVENESS STUDY OF THE BIOLOGICAL DETECTOR AND WARNING SYSTEM WAS CONDUCTED BY DUGWAY PROVING GROUND (DPG), DUGWAY, UTAH, AND EDGEWOOD ARSENAL, MARYLAND, FROM NOVEMBER 1972 THROUGH JULY 1974. THE PURPOSE OF THIS STUDY IS TO EVALUATE THE RELATIVE COST EFFECTIVENESS OF VARIOUS FIELDING CONCEPTS OF THE BIOLOGICAL DETECTOR AND WARNING SYSTEM. THE EVALUATION INCLUDED THE FIELDING OF THE BIOLOGICAL DETECTOR UNITS AS AN ORGANIC PART OF EXISTING MILITARY COMMUNICATIONS CENTERS, AND AS AN ALTERNATE CONCEPT, FIELDING THE DETECTOR UNITS UNDER THE CONTROL OF A SEPARATE MILITARY UNIT DEDICATED TO THE OPERATION AND MAINTENANCE OF THE DETECTOR AND WARNING SYSTEM. THE EFFECTIVENESS OF THE TWO FIELDING CONCEPTS WAS DETERMINED IN A DEFENSIVE BIOLOGICAL BATTLEFIELD ENVIRONMENT USING COMPUTER SIMULATION AND NUMERICAL INTEGRATION TECHNIQUES. COST DATA FOR THESE DEPLOYMENT CONCEPTS WERE DEVELOPED TO ALLOW A COST EFFECTIVENESS COMPARISON. (u)

AD-896 534L 15/2
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y

EVALUATION OF SELECTED BIOLOGICAL AEROSOL SAMPLERS. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
OCT 48 18P KATZ,M. F. IDEALER,J. J.
I
REPT. NO. NASL-940-38-TM-7
PROJ: S-4801-X
TASK: 11748

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDER, NAVAL SHIP SYSTEMS COMMAND, ATTN: CODE 03541, WASHINGTON, D. C. 20360.

DESCRIPTORS: (*AEROSOLS, *SAMPLERS), (*BACTERIAL AEROSOLS, SAMPLERS), COLLECTING METHODS, MICROORGANISMS, ENZYMES, DESIGN, TOXIC AGENT ALARMS, EFFECTIVENESS, SPORES, SAMPLING, POROUS MATERIALS, GLASS, FLUORESCENCE, BACILLUS SUBTILIS, ELECTROSTATICS (U)
IDENTIFIERS: AGIALL GLASS IMPINGERS), ALL GLASS IMPINGERS, BIOLOGICAL MULTICHANNEL ANALYZERS, BNA(BIOLOGICAL MULTICHANNEL ANALYZERS), FESTIF(FLUORESCENT ENZYME STAINING TECHNIQUE), SCAPI(SPACE CHARGE ATOMIZING PRECIPITATORS), SPACE CHARGE ATOMIZING PRECIPITATORS (U)

AN EVALUATION OF TWO ELECTROSTATIC TYPE LARGE VOLUME AIR SAMPLERS WAS UNDERTAKEN TO DETERMINE EFFICIENCY WHEN CHALLENGED WITH A VARIETY OF MICROORGANISMS. RELATIVE CAPTURE EFFICIENCIES WERE DETERMINED BY COMPARISON OF PLATE COUNTS BETWEEN THE ELECTROSTATIC SAMPLERS AND AN ALL GLASS IMPINGER. UNDER THE CONDITIONS EMPLOYED IT WAS FOUND THAT THE SPACE CHARGE ATOMIZING PRECIPITATOR WAS MORE EFFICIENT THAN THE POROUS ELECTRODE SAMPLER IN COLLECTING AND CONCENTRATING AEROSOLIZED MICROORGANISMS. THE SPACE CHARGE SAMPLER WAS SHOWN TO BE ESPECIALLY EFFICIENT IN THE CAPTURE OF BACILLUS SUBTILIS SPORES WHERE IT OUTPERFORMED THE POROUS ELECTRODE SAMPLER AND THE GLASS IMPINGER. (AUTHOR) (U)

AD-848 275 6/13 15/2
BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED TECHNOLOGY OPERATIONS

ALTERNATE PARTICHROME SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 68-DEC 69,
MAR 70 82P KAPLAN,ALLEN INEUBNER,VICTOR
ICARLSTON,ROBERT A. I
REPT. NO. FR-2674-101
CONTRACT: DAAA13-69-C-0041

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DETECTION), (*BIOLOGICAL STAINS, BACTERIA), COLORIMETRY, LABORATORY EQUIPMENT, DESIGN, INSTRUMENTATION, SENSITIVITY, BIOLOGICAL WARFARE AGENTS, TOXIC AGENT ALARMS (U)
IDENTIFIERS: *BIOLOGICAL AGENTS, *DETECTION, *PARTICHROME STAINING TECHNIQUE (U)

THIS STUDY WAS CONDUCTED TO DETERMINE THE FEASIBILITY OF USING THE PARTICHROME STAINING TECHNIQUE IN A SIMPLIFIED SYSTEM FOR THE DETECTION OF BACTERIA. IN THE SYSTEMS STUDIED, THE SAMPLE IS STAINED WITH A DILUTE SOLUTION OF BRILLIANT RED DYE, FILTERED THROUGH A NUCLEPORE FILTER AND WASHED ON THE FILTER TO REMOVE ANY FREE STAIN. THE SAMPLE IS THEN WASHED WITH AN ELUTION SOLVENT THAT IS STRONG ENOUGH TO REMOVE THIS STAIN FROM BACTERIA. THE ELUTION SOLVENT IS ANALYZED IN A COLORIMETER. AS THE BACTERIAL CONCENTRATION IN THE SAMPLE IS INCREASED, THE CONCENTRATION OF STAIN IN THE ELUTION SOLVENT WILL INCREASE, RESULTING IN HIGHER ABSORPTION AT THE MEASUREMENT WAVELENGTH (526 MM). THIS MEASUREMENT IS COMPARED TO A REFERENCE WAVELENGTH (900 MM) TO PROVIDE A STABLE OUTPUT THAT IS A FUNCTION OF THE BACTERIAL CONCENTRATION IN THE SAMPLE. (AUTHOR) (U)

AD-744 575 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RESULTS OF THE TESTS OF A NEW TYPE OF BACTERIA TRAP. (U)

AUG 73 10P RUDENKO,N. M. I
REPT. NO. FTD-MT-23-22-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR) 49 P129-127 1970. BY CHARLES T. OSTERTAG, JR.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *SAMPLERS), EFFICIENCY, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PROPOSED MODEL OF A PULVERIZER FOR BACTERIA TRAPS POSSESSES A NUMBER OF ADVANTAGES IN COMPARISON WITH OTHER DEVICES. IT ENSURES THE HIGHEST PERCENTAGE OF RETENTION AND THE LEAST PASSAGE OF MICROORGANISMS. IS SIMPLE IN ARRANGEMENT, AND IS THE MOST SUITABLE FOR STANDARDIZATION IN THE CASE OF SERIES PRODUCTION. (U)

AD-836 789 15/2
AAI CORP COCKEYSVILLE MD

DESIGN, DEVELOPMENT AND FABRICATION OF A SMALL AEROSOL SAMPLER. (U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JUN 66-31 MAY 68.
MAY 68 37P SYLVESTER,D. I
REPT. NO. ER-6293
CONTRACT: DA-18-064-AMC-666(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY BIOLOGICAL LABS., ATTN: TECHNICAL RELEASES BRANCH, FORT DETRICK, FREDERICK, MD. 21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, SAMPLERS), DESIGN, MANUFACTURING, SYSTEMS ENGINEERING, SAMPLING, PORTABLE EQUIPMENT, GAS FLOW, LIFE EXPECTANCY, PERFORMANCE(ENGINEERING), RELIABILITY(ELECTRONICS) (U)

THIS IS A FINAL REPORT SUBMITTED UNDER THE TERMS OF CONTRACT NO. DA-18-064-AMC-666(A) FOR U. S. ARMY BIOLOGICAL LABORATORIES, FORT DETRICK, MARYLAND. IT INVOLVED THE DESIGN AND DEVELOPMENT OF A PORTABLE AEROSOL SAMPLER AND THE FABRICATION OF FIFTY ASSEMBLIES. THE DEVICE WAS DEVELOPED TO PASS A KNOWN QUANTITY OF AIR THROUGH A STANDARD PAPER FILTER AND TO EXTRACT THE FOREIGN MATERIALS FOR SUBSEQUENT ANALYSIS. THE MOST IMPORTANT CRITERIA FOR THE DEVICE WAS THAT IT BE COMPLETELY PORTABLE, CAPABLE OF CONCEALMENT, QUIET IN OPERATION AND HAVE A CONSTANT FLOW RATE ACROSS THE FILTER. THE SAMPLER IS DESIGNED TO OPERATE ON COMMERCIAL 'D' SIZE BATTERIES. THE INPUT VOLTAGE TO THE MOTOR IS REGULATED TO A CONSTANT VALUE TO PROVIDE A CONSTANT SPEED FOR THE MOTOR AND A CONSTANT FLOW RATE OF THE PUMP. THE SAMPLER WILL OPERATE FROM 1 TO 6 HOURS DEPENDING ON THE BATTERY SELECTED AND THE FLOW RATE SETTING. (AUTHOR) (U)

AD-638 551 6/13 16/2
ARMY BIOLOGICAL LABS FREDERICK MD

SAMPLING MICROBIOLOGICAL AEROSOLS IN THE LOWER ATMOSPHERE. (U)

65 7P PHILLIPS,CHARLES R. (DECKER, HERBERT M.)

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE ATMOSPHERIC BIOLOGY CONFERENCE P171-7 1965.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BACTERIAL AEROSOLS, *SAMPLERS); AEROBIOLOGY, LOW ALTITUDE, INSTRUMENTATION, REVIEWS (U)

MUCH EXPERIENCE HAS BEEN OBTAINED IN LOWER ATMOSPHERIC SAMPLING FOR VIABLE AIRBORNE MICROORGANISMS BOTH OUTDOORS AND INDOORS. A LARGE NUMBER OF SAMPLING DEVICES HAVE BEEN DEVELOPED FOR THIS PURPOSE. FOR EXAMPLE, 37 DIFFERENT AEROSOL SAMPLERS ARE DESCRIBED IN DETAIL IN A RECENT PUBLIC HEALTH MONOGRAPH THAT WAS PUBLISHED JOINTLY BY U. S. PUBLIC HEALTH SERVICE AND U. S. ARMY BIOLOGICAL LABORATORIES. MANY OF THESE ARE NOT DIRECTLY ADAPTABLE TO LOW TEMPERATURES AND LOW PRESSURES THAT EXIST IN UPPER ATMOSPHERE, BUT BASIC PRINCIPLES ARE APPLICABLE IN MOST CASES, EVEN THOUGH SPECIALIZED DEVICES WILL PROBABLY HAVE TO BE DEVELOPED FOR ANY PROGRAM FOR SAMPLING IN THE ATMOSPHERE. (AUTHOR) (U)

AD-705 149 6/13 6/12
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

COMPARATIVE CHARACTERISTIC OF SOME OF THE DEVICES USED TO DETERMINE THE MICROBIAL CONTAMINATION OF THE AIR. (U)

MAR 70 8P (SHCHENKO,G. N.)
(KHABAKULOVA,Z. (SANIGULLIN,R.)
REPT. NO. FTD-MT-23-194-70
PROJ: FTD-6030029
TASK: DIA-T69-03-06

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MEDITSINSKII ZHURNAL UZBEKISTANA (USSR) N6 P16-18 1962, BY V. MESHKIEFF.

DESCRIPTORS: (*BACTERIAL AEROSOLS, DETECTORS); MICROORGANISMS, AIR POLLUTION, AIR, CONTAMINATION, CULTURE MEDIA, SAMPLING, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE ARTICLE DEALS WITH A COMPARATIVE STUDY BETWEEN KROTOV APPARATUS AND PLATE CULTURE METHODS OF DETERMINING MICROBIAL CONTAMINATION OF AIR. THE AIR TESTED WAS THAT OF SCHOOLS AND UNIVERSITIES BEFORE AND AFTER CLASSES. THE RESULTS HAVE BEEN TABULATED AND COMPARISON MADE. (AUTHOR) (U)

AD-752 824 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

TESTING DESIGN AND PROCUREMENT OF INCINERATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 69 22OP WALLACE,JAMES D. I
REPT. NO. EHL-H-69M-29
PROJ: EHL-E69-98

UNCLASSIFIED REPORT

DESCRIPTORS: (*INCINERATORS, AIR POLLUTION), (*AIR POLLUTION, COMBUSTION PRODUCTS), (*MILITARY FACILITIES, AIR POLLUTION), GAS ANALYSIS, LAW, SAMPLING, STANDARDS(U)
IDENTIFIERS: AIR POLLUTION, CONTROL, FLUE GASES (U)

THE REPORT DISCUSSES THE DESIGN, PERFORMANCE, AND TESTING OF INCINERATORS AT FEDERAL FACILITIES. ALSO GIVEN ARE THE FOLLOWING ARTICLES: EXECUTIVE ORDER 11282, 'CONTROL OF AIR POLLUTION ORIGINATING FROM FEDERAL INSTALLATIONS; 'PREVENTION, CONTROL, AND ABATEMENT OF AIR POLLUTION FROM FEDERAL GOVERNMENT ACTIVITIES'; 'SPECIFICATIONS FOR INCINERATOR TESTING AT FEDERAL FACILITIES'; AND AN INTERIM GUIDE TO GOOD PRACTICE FOR SELECTING INCINERATORS FOR FEDERAL FACILITIES. (U)

"Studies on the Use of a Novem Aerosolization Device for Collecting and Sizing Particles in the Ambient Atmosphere," Dews, J. N. and Stefanye, D., Fort Detrick, Frederick, Maryland, TM-177, August 1969.

"Exploratory Development of Continuous Filament Rotary Impactor Systems Final Report, February 1967 - January 1968," Green, W. D., Le Blanc, E. R., and Steck, C. H., Meteorology Research Inc., Altadena, California, MRI-68-FR-836, April 1969.

"Investigation of an Inertial Air Sampler Final Report," Rees, L. W. and Vomela, R. A., Environmental Research Corporation, St. Paul, Minnesota, REPT-802, September 1968.

"Study of Aerodynamic Rotors for Air Sampling, Final Summary Report, 11 June 1969 - 26 July 1970," Elwell, R. B., Aerojet-General Corporation, Fullerton, California, AGC-5078-01/01/FP, August 1970.

"Study of Aerodynamic Rotors for Air Samples," Elwell, R. B., Aerojet-General Corporation, Fullerton, California, AGC-5078-01/01/QP, November 1969.

"Air Pollution Engineering Source and Ambient Sampling Survey No. 21-032-71/72, Holston Army Ammunition Plant, Kingsport, Tennessee," Clearwater, R. M., Regan, G. F., and Leininger, K. V., Army Environmental Hygiene Agency, Edgewood Arsenal, Maryland, USAEHA-21-032-71/72, September 1972.

"Calibration of Two Stage Air Samplers," H. Ettinger, et al, in American Industrial Hygiene Association Journal, Vol. 31, September - October 1970.

"Evaluation of the ERC Virtual Impactor," Loo, Billy W. and Jaklevic, Joseph M., University of California (Berkeley), Lawrence Berkeley Laboratory, California Univ-LBL-2468, January 1974.

"Use of Whatman - 41 Filters in Air Quality Sampling Networks," H. Neustadter, et al, NASA TND-7595, May 1974.

"Stack Monitor System at the Idaho Chemical Processing Plant," Girton, R. C., Allied Chemical Corporation, Idaho Falls, Idaho, ICP-1034, September 1973.

"Air Pollution Engineering, Radford Army Ammunition Plant, Radford, Virginia, 13 July - 26 August 1969," Davis, MacKenzie L., Army Environmental Hygiene Agency, Edgewood Arsenal, Maryland, USAEHA-Survey-21-026-69/70, November 1969.

Synopsis: An atmospheric sampling survey was conducted at Radford Army Ammunition Plant to evaluate air pollutant concentrations with respect to existing and anticipated standards. Suspended particulates, sulfur dioxide, and nitrogen dioxide were measured at seven locations on and around the plant property.

"Sunflower Army Ammunition Plant, Lawrence, Kansas, 4-16 December 1967," Kasline, Thomas F., Army Environmental Hygiene Agency Edgewood Arsenal, Maryland, Report No. USAEHA-Survey-21-12-68/69, September 1968.

Synopsis: An air pollution source sampling survey was conducted at Sunflower Army Ammunition Plant, to determine the concentration of gaseous mist, and particulate emissions from the powerhouse and chemical manufacturing operations. (Reports similar to this covering other Army installations are available including: Fort Riley, Fort Riley, Kansas; Tobyhanna Army Depot, Tobyhanna, Pennsylvania; Volunteer Army Ammunition Plant, Tyner, Tennessee; Weldon Spring Chemical Plant, Weldon Spring, Missouri; Fort Leonard Wood, Fort Leonard Wood, Missouri; Valley Forge General Hospital, Phoenixville, Pennsylvania; Fort Myer, Fort Myer, Virginia; Military Ocean Terminal, Bayonne, New Jersey; Frankford Arsenal, Philadelphia, Pennsylvania; Seneca Army Depot, Romulus, New York; Fort Monmouth, Fort Monmouth, New Jersey; Natick Laboratories, Natick, Massachusetts; Detroit Arsenal, Warren, Michigan; Fort Benjamin Harrison, Fort Benjamin Harrison, Indiana; Fort George G. Meade, Fort George G. Meade, Maryland; Fort Sam Houston, Fort Sam Houston, Texas; Aeronautical Depot Maintenance Center, Corpus Christi, Texas; Army Materials and Mechanics Research Center, Watertown, Massachusetts; Fort Lawton, Fort Lawton, Washington; Jefferson Proving Ground, Madison, Indiana; Fort Hamilton Command, Fort Hamilton, New York; Madigan General Hospital, Tacoma, Washington; Badger Army Ammunition Plant, Baraboo, Wisconsin; Fort Polk, Louisiana; and Military Ocean Terminal, Sunny Point, Southport, North Carolina.

Aerosol Density Measurements Using a Modified Spiral Centrifuge Aerosol Spectrometer, Owen R. Moss, Harry J. Ettinger, James R. Coulter, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Reprinted from Environmental Science & Technology, Vol 6, PP. 614-617, Jul 1972

Size Selective Sampling for Plutonium-238, Harry J. Ettinger, William D. Moss, Lamar J. Johnson, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Health Physics, Vol 23, pp. 41-46, Pergamon Press, Jul 1972

"Studies in Air Sampling and Purification by Space Charged Precipitation" by Forsyth, R. H., et al, Cambridge Technology, Inc., Newton Upper Falls, Massachusetts, Report 5021-4, October 1970.

Synopsis: This report covers technology concerned with electrostatic precipitators and aerosols among other air purification techniques and air sampling techniques.

AIR-SOLID WASTE POLLUTION

AD-919 176L 19/1 13/2
ARMANN AND WHITNEY NEW YORK

DESIGN GUIDE FOR PROPELLANT AND EXPLOSIVE WASTE INCINERATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 73 198P SANTOS,JOSEPH IHEIDELBERGER,
WILLIAM IANTMAN,HARRY ISHUTA,NIRANJAN I
CONTRACT: DAAA21-72-C-0176
PROJ: DA-691L9
MONITOR: PA TR-4577

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; OCT 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: SARPA-TS-T-S, DOVER, N. J. 07801.

DESCRIPTORS: (*EXPLOSIVES, *WASTE DISPOSAL), (*PROPELLANTS, WASTE DISPOSAL), (*INCINERATORS, EXPLOSIVES), (*SOLID WASTES, EXPLOSIVES), LIQUID WASTES, AIR POLLUTION, TNT, RDX, HMX, FLUIDIZED BED PROCESSORS, CATALYSTS, NITROGEN OXIDES, REDUCTION, HAZARDS, SLURRIES, DOUBLE BASE PROPELLANTS, COMPOSITE PROPELLANTS, HANDLING, PREPARATION, COMPACTING, GRINDING, ABATEMENT, COMBUSTION, COMBUSTION PRODUCTS (U)
IDENTIFIERS: COMPOSITION B, ROTARY KILN INCINERATORS, VERTICAL INDUCED DRAFT INCINERATORS, POLLUTION ABATEMENT (U)

THIS REPORT WILL DISCUSS THE TECHNOLOGICAL DEVELOPMENT ASSOCIATED WITH INCINERATION OF WASTE EXPLOSIVES AND PROPELLANTS. INCINERATOR DESIGNS HAVE BEEN TESTED AND EVALUATED AS POLLUTION ABATEMENT VEHICLES TO ELIMINATE THE CURRENT DISPOSAL PRACTIVE OF OPEN-BURNING. THREE INCINERATOR DESIGNS WERE SELECTED FOR INVESTIGATIVE STUDIES. INITIAL WORK WAS ACCOMPLISHED IN AN EXISTING VERTICAL INDUCED DRAFT INCINERATOR TO ESTABLISH FEASIBILITY AND SAFETY REQUIREMENTS. TNT, COMPOSITION B, RDX, AND HMX WERE SUCCESSFULLY INCINERATED IN WATER SLURRY FORM. CONCURRENTLY, AVAILABLE OFF-THE-SHELF INCINERATORS WERE EVALUATED AND THE ROTARY KILN WAS SELECTED FOR EXTENSIVE STUDIES (AT RARP UNDER MM AND T PROJECT 691L9) TO ACCOMMODATE IMMEDIATE REQUIREMENTS.

AD-920 533L 19/1 13/2 13/8
FREEMAN LABS INC ROSEMONT ILL

EXPLOSIVES INCINERATOR EMISSIONS ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 JUN-30 NOV 73.
NOV 73 19P
REPT. NO. FLI-71-1039-F
CONTRACT: DAA#21-72-C-0420
PROJ: FLI-71-1039

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; NOV 73. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: SARPA-TS-S, DOVER, N. J. 07801.

DESCRIPTORS: (*EXPLOSIVES, *INCINERATORS), (*POLLUTANTS, EXPLOSIVES), AIR POLLUTION, FLUIDIZED BED PROCESSES, EMISSION, REDUCTION, TNT, HMX, RDX, SLURRIES, WATER, JET ENGINE FUELS, OPERATION, OPTIMIZATION, THERMODYNAMICS, SLURRY EXPLOSIVES, CARBON DIOXIDE, CARBON MONOXIDE, NITROGEN OXIDES, OXYGEN, COMBUSTION (U)
IDENTIFIERS: COMPOSITION B EXPLOSIVE, JP-4 FUEL, RP-1 FUEL, NITRIC OXIDE (U)

A METHOD HAS BEEN DEVELOPED WHICH PROVIDES A BASIS FOR OPTIMIZATION OF THE OPERATING PARAMETERS OF THE FLUIDIZED BED INCINERATOR FOR MINIMAL USE OF FUEL WITH POLLUTANT EMISSIONS AT EPA ACCEPTABLE LEVELS. THIS PROGRAM PERMITS DETERMINATION OF THE TEMPERATURE AND COMPOSITION OF THE COMBUSTION PRODUCTS FOR VARIOUS AIR-FUEL RATIOS AND VARIOUS EXPLOSIVE-FUEL MIXTURES. THE TEMPERATURE AND COMPOSITION OF THE COMBUSTION OF THREE (TNT-H2O) SLURRIES MIXED WITH JP-4 FUEL AT MASS RATIO OF ONE AND AT 125% AND 150% THEORETICAL QUANTITIES OF AIR, RESPECTIVELY, WERE OBTAINED TAKING INTO ACCOUNT SPECIES AS IDEAL GASEOUS PRODUCTS. THERE WERE ONLY EIGHT PREDOMINANT SPECIES IN THE PRODUCTS - CO2, CO, NITRIC OXIDE, ATOMIC OXYGEN, HYDROXYL RADICAL, WATER, NITROGEN AND OXYGEN. TEMPERATURE ATTAINED FOR COMPOSITION OF THE THREE SLURRIES AT 125% THEORETICAL AIR AND 150% THEORETICAL AIR LEVELS WERE IN THE NEIGHBORHOOD OF 2300 AND 2100K, RESPECTIVELY. CARBON MONOXIDE AND NITRIC OXIDE FOR THE CASE OF 125% THEORETICAL AIR APPEARED AT 6000 - 7500 PPM LEVELS, RESPECTIVELY.

AD-917 439L 6/6
AMMANN AND WHITNEY NEW YORK

DESIGN GUIDE FOR EXPLOSIVE CONTAMINATED INERT WASTE INCINERATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 73 140P SANTOS,JOSEPH |WESTOVER,EARL |AVELAR,MANUEL |
CONTRACT: DAAA21-72-C-0176
PROJ: 0A-94119
MONITOR: PA TR-4984

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 MAR 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: SARPA-TS-T-S, DOVER, N. J. 07801.

DESCRIPTORS: (•WASTE DISPOSAL, •INCINERATORS), (•WASTES(INDUSTRIAL), MUNITIONS INDUSTRY), AIR POLLUTION, WASTE MANAGEMENT, AUTOMATION, EXPLOSIVES, ENVIRONMENTAL ENGINEERING, HAZARDS, WASTE GASES, FLUE GASES, EMISSION, LAW, REGULATIONS, COMPACTING, SYSTEMS ANALYSIS, NOISE(SOUND), SEPARATION, METALS, CONVEYORS, SAFETY, BUILDINGS, ROADS, FACILITIES, AIR CONDITIONING EQUIPMENT, FIRE SAFETY, ELECTRICAL EQUIPMENT, COSTS, DRAWINGS (U)
IDENTIFIERS: •POLLUTION ABATEMENT, JOLIET ARMY AMMUNITION PLANT, ENVIRONMENTAL MANAGEMENT, STACK EMISSIONS (U)

THIS REPORT CONTAINS GUIDELINES TO BE USED IN THE DEVELOPMENT OF DESIGN CRITERIA FOR NEW EXPLOSIVE CONTAMINATED INERT WASTE INCINERATION FACILITIES. ALSO INCLUDED IS A DESCRIPTION OF THE EXISTING FACILITY AT JOLIET AAP. THE FACILITY CONCEPT INCLUDES FACILITY CAPACITIES FOR INCINERATING 8,000, 12,000 AND 24,000 POUNDS PER DAY OF EXPLOSIVE CONTAMINATED INERT WASTE. FACILITY LAYOUTS ARE PRESENTED ALONG WITH DESCRIPTION OF OPERATING EQUIPMENT AND ESTIMATED CONSTRUCTION COSTS. THE DESIGN CRITERIA GUIDELINES ARE PRESENTED FOR ALL DISCIPLINES. (AUTHOR) (U)

AD-876 176L 15/2 7/1
EDGEWOOD ARSENAL MD

INCINERATION OF GB AND CONTAINMENT OF GASEOUS PRODUCTS. (U)

DESCRIPTIVE NOTE: SUMMARY TECHNICAL REPT. 1 APR-1 JUL 70,
OCT 70 79P PUGH,DONALD L. |BAKER, JAMES A. |GENVASONI,THOMAS R. |HILDEBRANDT, HERMAN F. |
REPT. NO. EA-TR-4963

UNCLASSIFIED REPORT
DISTRIBUTION: USGO; OTHERS TO COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TSTI-T, EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (•GB AGENT, •DECONTAMINATION), (•INCINERATORS, •NERVE AGENTS), DECOMPOSITION, AIR POLLUTION, CONTROL, FLUORIDES, PYROLYSIS, REACTION KINETICS, COLORIMETRIC ANALYSIS, ENZYMES (U)
IDENTIFIERS: •AIR POLLUTION CONTROL EQUIPMENT, FLUORIDES, HYDROGEN, SCRUBBERS (U)

LABORATORY INCINERATION EXPERIMENTS HAVE DEMONSTRATED THAT GB CAN BE DESTROYED TO A DEGREE OF 99.9968 IN 0.3 SECONDS AT 1000C. THIS WORK EXTENDS EARLIER INVESTIGATIONS OF HIGH TEMPERATURE PYROLYSIS OF GB. PLANT-SCALE SCRUBBING OF GB VAPORS FROM AIR HAVE YIELDED A 98.4% SCRUBBING EFFICIENCY IN VENTURI SCRUBBERS. LABORATORY SCRUBBING TESTS HAVE REACHED 99.98% SCRUBBING EFFICIENCY. COMBINING CONSERVATIVE VALUES OF INCINERATION AND PRODUCTION-SCALE SCRUBBING EFFICIENCIES, AN OVERALL PROCESS EFFICIENCY FOR GB DISPOSAL APPROACHES A ZERO EMISSION LEVEL: 99.999995. UNDER THE CONDITIONS ANTICIPATED FOR OPERATION OF A TRANSPORTABLE INCINERATOR, THE MAXIMUM GROUND-LEVEL CONCENTRATION OF GB WOULD BE 0.0000033 MG/CU M. THIS CONCENTRATION OF GB WOULD REPRESENT NO HAZARD ON A CONTINUOUS BASIS TO OPERATING PERSONNEL OR TO THE SURROUNDING POPULACE. THE PRESENT STATE OF INDUSTRIAL TECHNOLOGY WAS CAPABLE OF REMOVING HYDROGEN FLUORIDE, A POTENTIAL POLLUTANT FROM GB INCINERATION, FROM AN AIRSTREAM TO THE EXTENT OF OVER 99.9%.

AD-880 993 13/2 13/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

INCINERATION OF SELECTED INDUSTRIAL WASTES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 FEB-1 AUG 70,
JAN 71 35P HIROTA,DENNIS I. I
REPT. NO. AFWL-TR-70-173
PROJ: AF-637239

UNCLASSIFIED REPORT

DESCRIPTORS: (*WASTES(INDUSTRIAL), *INCINERATORS), (*LUBRICANTS, DISPOSAL), (*PHOTOGRAPHIC MATERIALS, DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS), COMBUSTION, PARTICLES, AIR POLLUTION, COSTS, FURNACES(U)
IDENTIFIERS: *AIR POLLUTION, *CONTROL (U)

A PRELIMINARY INVESTIGATION IS PRESENTED OF DIRECT LIQUID INJECTION INCINERATION AS A WASTE TREATMENT TECHNIQUE FOR THE DISPOSAL OF THREE SELECTED USAF INDUSTRIAL WASTES: METAL FINISHING; PETROLEUM, OIL, AND LUBRICANT (POL); AND PHOTOGRAPHIC. TWO COMMERCIALLY AVAILABLE PILOT PLANT INCINERATORS WERE USED FOR THE TESTING. WASTE FLOW RATES VARIED FROM 10 TO 50 GALLONS PER HOUR. RESULTS INDICATED THAT PARTICULATE EMISSIONS CONTROL DEVICES WOULD BE REQUIRED FOR THE INCINERATION OF THE SELECTED WASTES. COST ESTIMATES ARE COMPUTED FOR THE THREE WASTES AND RANGED FROM $0.001/LB POL WASTE TO $0.01/LB OF METAL FINISHING AND PHOTOGRAPHIC WASTES. (AUTHOR) (U)

AD-918 612 13/2 21/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

PREDICTING COMBUSTION PRODUCTS FOR DISPOSAL OF ORGANIC COMPOUNDS. (U)

MAR 73 21P HILL,G. A. I
REPT. NO. DRES-MEMO-41/73

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*COMBUSTION PRODUCTS, WASTES(SANITARY ENGINEERING)), (*WASTES(SANITARY ENGINEERING), *DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS), COMPUTER PROGRAMS, PREDICTIONS, REACTION KINETICS, THERMODYNAMICS, CARBON, HYDROGEN, CHLORINE, OXYGEN, SULFUR, CANADA, NITROGEN, HEAT, DDT, ETHERS, ORGANIC SULFUR COMPOUNDS, CHLORIDES (U)

A COMPUTER PROGRAM APPLYING KINETICS AND THERMODYNAMICS WAS DEVELOPED TO EVALUATE THE QUANTITY AND TYPE OF COMBUSTION PRODUCTS FOR BURNING A WIDE RANGE OF ORGANIC WASTES. AS EXAMPLES, RESULTS FOR DDT AND BIS - (2-CHLOROETHYL) - THIOETHER WERE DETERMINED. (AUTHOR) (U)

AD-917 439L 6/6
AMMANN AND WHITNEY NEW YORK

DESIGN GUIDE FOR EXPLOSIVE CONTAMINATED INERT WASTE INCINERATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 73 190P SANTOS,JOSEPH IWESTOVER,DARL
IAVELAR,MANUEL I
CONTRACT: DAAA21-72-C-0176
PROJ: DA-59119
MONITOR: P4 TM-4586

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 13 MAR 74. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY ARSENAL, ATTN: SARPA-TS-T-S, DOVER, N. J. 07801.

DESCRIPTORS: (*WASTE DISPOSAL, *INCINERATORS), (*WASTES(INDUSTRIAL), MUNITIONS INDUSTRY), AIR POLLUTION, WASTE MANAGEMENT, AUTOMATION, EXPLOSIVES, ENVIRONMENTAL ENGINEERING, HAZARDS, WASTE GASES, FLUE GASES, EMISSION, LAW, REGULATIONS, COMPUTING, SYSTEMS ANALYSIS, NOISE(SOUND), SEPARATION, METALS, CONVEYORS, SAFETY, BUILDINGS, ROADS, FACILITIES, AIR CONDITIONING EQUIPMENT, FIRE SAFETY, ELECTRICAL EQUIPMENT, COSTS, DRAWINGS (U)
IDENTIFIERS: *POLLUTION ABATEMENT, JOLIET ARMY AMMUNITION PLANT, ENVIRONMENTAL MANAGEMENT, STACK EMISSIONS (U)

THIS REPORT CONTAINS GUIDELINES TO BE USED IN THE DEVELOPMENT OF DESIGN CRITERIA FOR NEW EXPLOSIVE CONTAMINATED INERT WASTE INCINERATION FACILITIES. ALSO INCLUDED IS A DESCRIPTION OF THE EXISTING FACILITY AT JOLIET AAP. THE FACILITY CONCEPT INCLUDES FACILITY CAPACITIES FOR INCINERATING 5,000, 13,000 AND 26,000 POUNDS PER DAY OF EXPLOSIVE CONTAMINATED INERT WASTE. FACILITY LAYOUTS ARE PRESENTED ALONG WITH DESCRIPTION OF OPERATING EQUIPMENT AND ESTIMATED CONSTRUCTION COSTS. THE DESIGN CRITERIA GUIDELINES ARE PRESENTED FOR ALL DISCIPLINES. (AUTHOR) (U)

AD-881 675L 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

PRELIMINARY AIR POLLUTION ENGINEERING SURVEY NO. 21-010-71, TOBYHANNA ARMY DEPOT, TOBYHANNA, PENNSYLVANIA, 7-8 OCTOBER 1970. (U)

DEC 70 16P MAJEWSKI,ROBERT V. I
REPT. NO. USAEHA-SURVEY-21-010-71

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO COMMANDING GENERAL, ARMY MATERIEL COMMAND, ATTN: AMCHN, WASHINGTON, D. C. 20315.

DESCRIPTORS: (*AIR POLLUTION, *MILITARY FACILITIES), BOILERS, FUELS, EVAPORATION, COAL, COMBUSTION PRODUCTS, PARTICLES, MONITORS, SMOKE, SULFUR, WASTES(SANITARY ENGINEERING), ELECTROPLATING, WASTES(INDUSTRIAL), CHROMIC ACID, PENNSYLVANIA (U)
IDENTIFIERS: ABATEMENT, *AIR POLLUTION, *CONTROL, EVAPORATION CONTROL, SOLID WASTE DISPOSAL, *TOBYHANNA ARMY DEPOT (U)

A PRELIMINARY AIR POLLUTION ENGINEERING SURVEY WAS CONDUCTED AT TOBYHANNA ARMY DEPOT, TOBYHANNA, PENNSYLVANIA, TO INVESTIGATE POTENTIAL AIR POLLUTION SOURCES, EVALUATE THE EXISTING 5-YEAR PLAN FOR AIR POLLUTION ABATEMENT, AND RECOMMEND CORRECTIVE MEASURES WHERE APPROPRIATE. POTENTIAL AIR POLUTION SOURCES INVESTIGATED WERE STATIONARY FUEL COMBUSTION FACILITIES, VOLATILE FUEL STORAGE FACILITIES, SOLID WASTE DISPOSAL AND INDUSTRIAL OPERATIONS. (AUTHOR) (U)

AD-A078 748L 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

GRANITE CITY ARMY DEPOT, GRANITE CITY, ILLINOIS, 16-17 NOVEMBER 1967. (U)

MAR 68 14P GALARIENZ,ROBERT W. I
REPT. NO. USAEHA-SURVEY-21-11-68

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO COMMANDING GENERAL, ARMY MATERIEL COMMAND, ATTN: AMCHN. WASHINGTON, D. C. 20315.

DESCRIPTORS: (*AIR POLLUTION, PARTICLES); (*MILITARY FACILITIES, AIR POLLUTION); SMOKE, HEATING PLANTS, COAL, EVAPORATION, GASOLINE, STORAGE TANKS, COMBUSTION PRODUCTS, ILLINOIS (U)
IDENTIFIERS: ABATEMENT, *AIR POLLUTION, *CONTROL, EVAPORATION CONTROL, GRANITE CITY ARMY DEPOT, GRANITE CITY(ILLINOIS), OPEN BURNING (U)

A PRELIMINARY AIR POLLUTION SURVEY OF GRANITE CITY ARMY DEPOT WAS CONDUCTED IN NOVEMBER 1967. PARTICULATE EMISSIONS FROM THE COAL-BURNING CENTRAL HEATING PLANT, PARTICULATE EMISSIONS FROM 12 COAL-BURNING UNITS LESS THAN 10 MILLION BTU PER HOUR HEAT INPUT, DUST FROM ASH HANDLING, OPEN BURNING, AND GASOLINE STORAGE TANKS WERE ALL FOUND TO BE IN VIOLATION OF AR 11-21. THE CENTRAL HEATING PLANT WAS NOT EQUIPPED WITH RECORDING SMOKE DETECTORS. OTHER DEPOT ACTIVITIES DID NOT EMIT SIGNIFICANT AIR POLLUTANTS. RECOMMENDATIONS WERE MADE FOR REDUCTION OF PARTICULATE EMISSIONS AND INSTALLATION OF SMOKE DETECTORS IN THE CENTRAL HEATING PLANT, REDUCTION OF PARTICULATE EMISSION FROM THE 12 MINOR COAL BURNING UNITS, REDUCTION OF DUST RELEASED DURING ASH DISPOSAL, ELIMINATION OF THE OPEN BURNING, AND INSTALLATION OF VAPOR CONTROL DEVICES ON GASOLINE STORAGE TANKS. (AUTHOR) (U)

AD-A078 672L 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

CONSULTATION VISIT ON INCINERATORS, FITZSIMONS GENERAL HOSPITAL, DENVER, COLORADO, 25 APRIL 1969. (U)

JUL 69 22P KLEINFELD,ROLAND C. I
REPT. NO. USAEHA-SURVEY-21-025-69

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO OFFICE OF THE SURGEON GENERAL (ARMY), ATTN: MEDPS-P. WASHINGTON, D. C. 20314.

DESCRIPTORS: (*AIR POLLUTION, COMBUSTION PRODUCTS); (*HOSPITALS, AIR POLLUTION); (*INCINERATORS, AIR POLLUTION); PARTICLES, PATHOLOGY, CONTROL, SMOKE, COLORADO (U)
IDENTIFIERS: ABATEMENT, *AIR POLLUTION, *CONTROL, *DENVER(COLORADO), *FITZSIMONS GENERAL HOSPITAL (U)

A CONSULTATION VISIT WAS MADE TO FITZSIMONS GENERAL HOSPITAL, DENVER, COLORADO, TO INSPECT EXISTING INCINERATION OPERATIONS, ESPECIALLY THOSE AT BUILDING 264, AND EVALUATE METHODS FOR CONFORMING WITH APPLICABLE EMISSION REGULATIONS. RECOMMENDATIONS WERE: CONTINUE EFFORTS TO REDUCE THE PARTICULATE EMISSIONS FROM THE INCINERATOR TO ACCEPTABLE LIMITS; INVESTIGATE THE FEASIBILITY OF REPLACING THE EXISTING INCINERATOR WITH AN ACCEPTABLE PACKAGE UNIT; CONSIDER THE WASTE INCINERATOR TO BE IN CONFORMANCE WITH APPLICABLE AIR POLLUTION REGULATIONS UNLESS A COMPLAINT IS RECEIVED; DO NOT PROGRAM COSTLY RENOVATIONS FOR THE WASTE INCINERATOR; EVALUATE THE PATHOLOGICAL INCINERATOR FOR CONFORMANCE WITH APPLICABLE AIR POLLUTION REGULATIONS. (AUTHOR) (U)

"The Thermal Destructor, A Facility for Incineration of Chlorinated Hydrocarbons," Montgomery, W. L., et al; Defense Research Establishment, Suffield, Ralston (Alberta), Report No. DRES-270, October 1971.

Synopsis: Following the Federal Government's decision to ban general use of DDT in Canada, many government agencies were left with stocks of surplus DDT formulations. In order to dispose of these, the Defense Research Establishment, Suffield, built an incinerator specifically designed to decompose chlorinated hydrocarbons. This paper describes the background history and design of this incinerator facility and outlines its construction and operation. It includes a report on the results of the first two months' operating experience, and discusses future plans for destruction of unwanted chemicals.

"Classified Materials Incineration: The Problems and Current Approaches to Their Solution," Watson, William W., Naval Civil Engineering Laboratory, Port Hueneme, California, Report No. NCEL-TN-1200, April 1972.

Synopsis: The Naval shore establishment has found it increasingly difficult to effectively and economically destroy the never-ending accumulation of classified materials generated by modern government. This difficulty has, in addition, been magnified in recent years by the necessity for compliance with increasingly stringent air pollution control regulations. A continuing investigation has been conducted into improved methods for classified materials destruction, with special emphasis on incineration processes. As a result of this program, it has been determined that the "starved air" incinerator is currently a relatively inexpensive and potentially effective unit. For major installations, and for the destruction of large quantities of densely packed or bound material, the "rotating combustion chamber" incinerator appears promising.

"Evaluation of Jered "Vacu-Burn" Sanitary Sewage Treatment System," Raupuk, Milton W., Naval Ship Research and Development Center, Annapolis, Maryland, Report No. NSRDC-28-612, May 1973.

Synopsis: The 200-man Vacu-Burn Sewage Treatment System, installed at the Naval Station Marine Barracks, Annapolis, Maryland, is a no-liquid discharge vacuum-collection system with vortex incineration.

"New Techniques for Processing of Municipal Refuse," Rothman, Torsten, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, AFWL-TR-71-41, April 1971.

Synopsis: New methods were investigated for processing and disposal of municipal refuse. Volume reduction techniques including incineration and several variations, pyrolysis, compaction, and grinding are discussed in detail. Resource recovery and storage, collection and transportation are also covered.

"Laboratory Studies of Batch Wet Air Oxidation of Sewage," Naval Ship Research and Development Laboratory, Annapolis, Maryland, Report No. NSRDL/A-28-150, March 1972.

Synopsis: Batch-type wet air oxidation experiments have been carried out on a laboratory scale on samples of domestic waste-water sludges diluted to shipboard sanitary waste concentrations. An 85 percent reduction of chemical oxygen demand (COD) was obtained at conditions of 500-600 F at 1800 to 2250 psi on a one liter chemical autoclave (with stirring at constant speed and in the presence of excess air).

"Polar Sanitation - Incineration for Waste Disposal in a Pollution Control System," Drobny, Neil L., Naval Civil Engineering Laboratory, Port Hueneme, California, NCEL-TN-880, March 1967.

Synopsis: It is concluded that incineration provides the most suitable method for disposal of polar camp wastes.

"Film Destruction and Silver Recovery," Ristau, William T., New Mexico University, Albuquerque, TR-73-176, December 1973.

Synopsis: A calcinator model 10-GSX incinerator was evaluated for destruction of photographic film and silver recovery. Emissions from the stack were measured during the normal operating mode as well as during a water-spray treatment in the primary chamber to reduce the temperature. The calcinator did not meet the 1972 federal emission standards for particulates.

"Evaluation Program for Radioactive Waste Incineration," Lachapelle, David G., Army Nuclear Defense Laboratory, Edgewood Arsenal, Maryland, NDL-TM-24, October 1965.

Synopsis: A 50 lb/hr incinerator and associated gas-cleaning equipment for the concentration of low-level radioactive waste is described.

"Study of Concepts and Equipment Suitable for OnBoard Pyrolytic Reduction of Shipboard Wastes," White, R. H., New York Ocean Science Laboratory, Montauk, 1973.

Synopsis: The objective of this study was to evaluate the design, performance, and operational characteristics of the partial and total gasification pyrolysis of organic wastes by direct exposure to hot inert gases, or by fluidized bed pyrolyzers.

"Predicting Combustion Products for Disposal of Organic Compounds," Hill, G. A., Defense Research Establishment, Suffield, Ralston (Alberta), DRES-MEMO-41/72, March 1973.

Synopsis: A computer program applying kinetics and thermodynamics was developed to evaluate the quantity and type of combustion products for burning a wide range of organic wastes. As examples, results for DDT and BIS were determined.

INTERMEDIA TRANSPORT

AD-680 797 13/2
RAND CORP SANTA MONICA CALIF

INCREASE OF EXCHANGEABLE CARBON IN THE EARTH'S RESERVOIRS FROM COMBUSTION OF FOSSIL FUELS. (U)

DEC 66 26P DUGAS,NORIS J. I
REPT. NO. P-3990

UNCLASSIFIED REPORT

DESCRIPTORS: (*CARBON DIOXIDE, ATMOSPHERES), (*AIR POLLUTION, CARBON DIOXIDE), MATHEMATICAL MODELS, HYDROCARBONS, FUELS, OCEANS, SURFACE PROPERTIES, DEPOSITS, SOILS, GEOLOGIC AGE DETERMINATION, RADIOACTIVE ISOTOPES, CARBON, PERIODIC VARIATIONS, ATMOSPHERIC TEMPERATURE, INDUSTRIES, SOURCES, ABSORPTION (U)
IDENTIFIERS: FOSSIL FUELS (U)

THE DISTRIBUTION OF EXCESS CARBON DIOXIDE PRODUCED DURING AND AFTER THE CONSUMPTION OF ALL FOSSIL FUEL IS DETERMINED WITH THE AID OF A FOUR-RESERVOIR MODEL OF CARBON EXCHANGE AS DEVELOPED PREVIOUSLY FOR CARBON-14. FROM ESTIMATES OF THE TOTAL HYDROCARBON FUEL RESOURCES ORIGINALLY ON EARTH, IT IS CALCULATED THAT ABOUT 3000 BILLION TONS OF CARBON ULTIMATELY MAY BE RELEASED TO THE ATMOSPHERE FROM THIS SOURCE. CARBON EXCESS IN THE SURFACE LAYERS OF THE OCEAN REACHES A PEAK A FEW YEARS LATER THAN THE ATMOSPHERE AND RETAINS SOMEWHAT LESS OF THE EXCESS CARBON AT EQUILIBRIUM, WHILE THE DEEP SEA EVENTUALLY ABSORBS OVER 90 PERCENT OF THE EXCESS CARBON RELEASED BY FOSSIL FUEL CONSUMPTION. IT WAS FOUND THAT THE RESULTS ARE HIGHLY SENSITIVE TO THE ASSUMPTIONS AS TO FUTURE FOSSIL FUEL CONSUMPTION RATES, BUT THAT THE ATMOSPHERIC CARBON CONCENTRATION IS NOT CRITICALLY AFFECTED BY THE AMOUNT OF DIRECT EXCHANGE BETWEEN THE ATMOSPHERE AND DEEP SEA. (AUTHOR) (U)

AD-911 814 21/9.1 7/3
NAVAL UNDERWATER SYSTEMS CENTER NEWPORT R I

OTTOFUEL II: EVAPORATION INTO AIR AND DIFFUSION INTO SEA WATER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 36P COX,WALTER G. INILLIGAN, SYDNEY IHIRSCHLER,H. PETER I
REPT. NO. NUSC-TR-4920
PROJ: NUSC-D-391-01; ORD-066-000/091-1/UW0068-001

UNCLASSIFIED REPORT

DESCRIPTORS: (*MONOPROPELLANTS, EVAPORATION), LIQUID ROCKET PROPELLANTS, TORPEDO PROPELLANTS, SUBMARINES, DIFFUSION, CONTROLLED ATMOSPHERES, WATER POLLUTION, AIR POLLUTION, PROPENES, NITRATES, GLYCOLS, ODORS, SEA WATER, DENSITY, IMPURITIES, POLAROGRAPHIC ANALYSIS, QUANTITATIVE ANALYSIS, MATHEMATICAL ANALYSIS, VAPORS, ACCIDENTS, TOXICITY (U)
IDENTIFIERS: FUEL SPILLS, *OTTO FUEL 2, OTTO FUELS, PROPYLENE GLYCOL DINITRATE (U)

THE FACTOR WHICH CONTROLS THE BUILDUP OF OTTOFUEL VAPOR IN THE ATMOSPHERE OF ANY ENVIRONMENT IN WHICH OTTOFUEL IS SPILLED IS THE RATE OF EVAPORATION OF MATERIAL FROM THE SPILL. IN ORDER TO OBTAIN MORE INFORMATION ON THE QUANTITATIVE ASPECTS OF THE PROBLEM, THE EVAPORATION RATE OF OTTOFUEL II AT 25-27 C WAS DETERMINED BY WEIGHT LOSS MEASUREMENTS IN A NITROGEN ATMOSPHERE. AFTER AN INITIAL PERIOD OF 3-4 HOURS, THE EVAPORATION RATE WAS FOUND TO BE 0.18 G/HR/SQ FT OF THE SPILL. AN INITIALLY HIGHER WEIGHT LOSS IS ATTRIBUTED IN PART TO WATER THAT WAS DISSOLVED IN THE OTTOFUEL AND IN PART TO THE PRESENCE OF A VOLATILE IMPURITY THAT COULD NOT BE REMOVED BY DRYING THE LIQUID WITH CALCIUM SULFATE. THE OBSERVED EVAPORATING RATE WAS IN GOOD AGREEMENT WITH THE RATE OF 0.52 G/HR/SQ FT REPORTED FOR PROPYLENE GLYCOL DINITRATE (PGDN) AT 35 C, AND WITH THE RATE OF 0.135 G/HR/SQ FT CALCULATED FOR PGDN AT 25 C USING LANGMUIR'S METHOD OF CALCULATING THE EVAPORATION RATE OF LIQUIDS INTO A STAGNANT ATMOSPHERE. (PGDN IS THE MAIN INGREDIENT OF OTTOFUEL - 76 PERCENT BY WEIGHT.) A NEW TECHNIQUE, BASED ON DIFFERENTIAL PULSE POLAROGRAPHY, WAS DEVELOPED FOR THE QUANTITATION OF PGDN IN SEA WATER. THIS TECHNIQUE WAS USED TO FOLLOW THE DIFFUSION OF OTTOFUEL THROUGH A STAGNANT LAYER OF SEA WATER. UNDER FAVORABLE CIRCUMSTANCE (I.E., (U)

AD-901 604 6/3 18/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

A SIMPLIFIED METHOD FOR CALCULATING GROUND CONTAMINATION DENSITIES FROM AERIAL SPRAY OF NON-VOLATILE LIQUIDS. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE, MAR 72 11P MONAGHAN,J. MCPHERSON,W. R. ;
REPT. NO. DRES-TN-314

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AEROSOLS, DISTRIBUTION), (*TERRAIN, CONTAMINATION), (*COMPUTER PROGRAMS, AEROSOLS), SPRAYS, AIRBORNE, DENSITY, AREA COVERAGE, WIND, DISTRIBUTION, PARTICLE SIZE, ALTITUDE, EQUATIONS, MATHEMATICAL PREDICTION, MATHEMATICAL MODELS, GRAVITY, SOILS, DIFFUSION, PARTICLES, AEROBIOLOGY, CANADA (U)
IDENTIFIERS: AERIAL DELIVERY, GRAVITATIONAL SETTLING MODELS, IBM 1130 COMPUTERS, MASS MEDIAN DIAMETER (U)

A SIMPLIFIED METHOD FOR CALCULATING GROUND CONTAMINATION DENSITIES FROM AERIAL SPRAY HAS BEEN DEVELOPED BY RELATING THE PARAMETERS OF AN EMPIRICAL PEARSON III DISTRIBUTION TO SPRAY AND METEOROLOGICAL PARAMETERS, USING A PROVEN GRAVITATIONAL SETTLING MODEL. FOR CALCULATIONS INVOLVING MORE THAN ONE SPRAY RELEASE, A COMPUTER PROGRAM IS GIVEN WHICH PROVIDES FOR EMISSIONS OF UP TO TEN PARALLEL TRACKS WITH VARIABLE SPACING AND VARIATION OF RELEASE HEIGHT BETWEEN TRACKS.
(AUTHOR) (U)

237 / 238

AD-880 493 13/2 13/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

INCINERATION OF SELECTED INDUSTRIAL WASTES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 FEB-1 AUG 70, JAN 71 36P HIROTA,DENNIS I. ;
REPT. NO. AFWL-TR-70-173
PROJ: AF-637238

UNCLASSIFIED REPORT

DESCRIPTORS: (*WASTES(INDUSTRIAL), *INCINERATORS), (*LUBRICANTS, DISPOSAL), (*PHOTOGRAPHIC MATERIALS, DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS), COMBUSTION, PARTICLES, AIR POLLUTION, COSTS, FURNACES (U)
IDENTIFIERS: *AIR POLLUTION, *CONTROL (U)

A PRELIMINARY INVESTIGATION IS PRESENTED OF DIRECT LIQUID INJECTION INCINERATION AS A WASTE TREATMENT TECHNIQUE FOR THE DISPOSAL OF THREE SELECTED USAF INDUSTRIAL WASTES: METAL FINISHING, PETROLEUM, OIL, AND LUBRICANT (POL), AND PHOTOGRAPHIC. TWO COMMERCIALLY AVAILABLE PILOT PLANT INCINERATORS WERE USED FOR THE TESTING. WASTE FLOW RATES VARIED FROM 10 TO 50 GALLONS PER HOUR. RESULTS INDICATED THAT PARTICULATE EMISSIONS CONTROL DEVICES WOULD BE REQUIRED FOR THE INCINERATION OF THE SELECTED WASTES. COST ESTIMATES ARE COMPUTED FOR THE THREE WASTES AND RANGED FROM $0.001/LB POL WASTE TO $0.01/LB OF METAL FINISHING AND PHOTOGRAPHIC WASTES.
(AUTHOR) (U)

WATER-AIR POLLUTION

General

AD-718 613 13/2 11/6
ARMY NATICK LABS MASS EARTH SCIENCES LAB

BIBLIOGRAPHY ON ATMOSPHERIC (CYCLIC) SEA-SALTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 70 78P BRIERLY,WILLIAM B. ;
REPT. NO. ES-67
PROJ: DA-1-T-0A1101-A-914
MONITOR: USA-NLABS TR-70-63-ES

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, SALTS), (*BIBLIOGRAPHIES, AIR POLLUTION), (*AEROSOLS, DISTRIBUTION), (*SALTS, CORROSION), (*ATMOSPHERES, SALTS), LAKES, OCEANS, RIVERS, CORROSION INHIBITION, INTERACTIONS, ATMOSPHERIC MOTION, UPPER ATMOSPHERE, CHEMICAL PROPERTIES, ATMOSPHERIC PRECIPITATION, INDEXES (U)
IDENTIFIERS: AIR WATER INTERACTIONS (U)

240

THE BIBLIOGRAPHY PROVIDES MORE THAN 600 REFERENCES COVERING ALL PHASES OF THE SEA-SALT CYCLE; THE ORIGIN OF THE PARTICLES IN SALT LAKES, PLAYAS, AND OCEANS, THE PROCESSES BY WHICH THE SALT PARTICLES ARE JETTED INTO THE AIR FROM SEA AND LAKE SURFACES BY BURSTING BUBBLES, THEIR TRANSPORT INLAND OVER THE CONTINENTAL LANDMASSES, THEIR IMPINGEMENT, INCRUSTMENT, AND FALLOUT EITHER AS DRY SALT PARTICLES OR IN VARIOUS FORMS OF PRECIPITATION, AND THEIR EVENTUAL RETURN IN RIVERS TO THE SEA. SELECTED REFERENCES ARE ALSO INCLUDED ON THE HISTORIC DEVELOPMENT OF THE SUBJECT, METHODS OF CHEMICAL ANALYSIS, AND TECHNIQUES OF INSTRUMENTATION AND EXPERIMENTAL RESEARCH LEADING TO THE FORMULATION OF CURRENT THEORIES AND POSTULATIONS. AN INDEX TO SUBJECTS IS INCLUDED SO THAT THE READER MAY QUICKLY LOCATE REFERENCES PERTAINING TO HIS IMMEDIATE INTEREST. MOST OF THE CURRENT METEOROLOGICAL AND GEOPHYSICAL JOURNALS AS WELL AS OBSCURE SOURCES OF WORLD-WIDE SCOPE HAVE BEEN USED IN THIS COMPILATION. (AUTHOR) (U)

AD-893 391L 9/1 15/2
GCA CORP BEDFORD MASS GCA TECHNOLOGY DIV

DEVELOPMENT OF DOSAGE MODELS AND CONCEPTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 72 391P CHAMPA,HARRISON E. ;
BJORKLUND,JAY R. ;DUMBAULD,RICHARD K. ;
FAULKNER,JAMES E. ;RECORD,FRANK A. ;
REPT. NO. GCA-TR-70-15-G
CONTRACT: DAADO9-67-C-0020
PROJ: USATECOM-5-CO-403-000-033, RDT/E-1-T-062111-A-12A
MONITOR: DTC TR-72-409

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; FEB 72. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL, DESERET TEST CENTER, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*AEROSOLS, *ATMOSPHERIC MOTION), (*CHEMICAL WARFARE AGENTS, ATMOSPHERIC MOTION), (*AIR POLLUTION, ATMOSPHERIC MOTION), MATHEMATICAL MODELS, DOSAGE, DIFFUSION, STATISTICAL ANALYSIS, PARTICLES, WIND, URBAN AREAS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: AIR WATER INTERACTIONS, ATMOSPHERIC CIRCULATION, ATMOSPHERIC DENSITY, DIFFUSION, *ATMOSPHERE MODELS, SEASONAL VARIATIONS (U)

THE REPORT DESCRIBES THE CONCEPT, DEVELOPMENT, COMPUTER IMPLEMENTATION AND APPLICATION OF A COMPREHENSIVE SET OF GENERALIZED MATHEMATICAL MODELS FOR CALCULATING GROUND-LEVEL CONCENTRATIONS AND DOSAGES OF AEROSOLS RELEASED TO THE LOWER ATMOSPHERE. AUXILIARY FORMULAS ARE PROVIDED FOR CALCULATING THE EFFECTS OF DECAY, GRAVITATIONAL SETTLING, PRECIPITATION REMOVAL, AND THE BUOYANT RISE OF HOT EFFLUENTS. OTHER MAJOR TOPICS INCLUDE THE APPLICATION OF THE GENERALIZED PREDICTION MODELS TO HAZARD-SAFETY ESTIMATION AT DUGWAY PROVING GROUND; STUDIES OF MESOSCALE WIND CIRCULATIONS; USE OF THE MARQUARDT NONLINEAR LEAST-SQUARES ESTIMATION TECHNIQUE IN TESTING PREDICTION-MODEL PERFORMANCE AND IN ESTIMATING MODEL INPUT PARAMETERS; STUDIES OF CLOUD TRANSPORT AND DEPOSITION; ANALYSIS OF RECENT FIELD MEASUREMENTS OF URBAN DIFFUSION PATTERNS; AND A REVIEW OF EXISTING THEORETICAL AND EMPIRICAL KNOWLEDGE OF LAND-WATER CIRCULATIONS. (AUTHOR) (U)

AD-733 015 4/3 8/10
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS

BURSTING BUBBLES AND AIR POLLUTION. (U)

66 9P WOODCOCK,A. H. I
REPT. NO. WHOI-CONTRIB-741

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN UNIDENTIFIED JNL.

DESCRIPTORS: (*OCEANS, *BACTERIAL AEROSOLS), (*AEROBIOLOGY, OCEANS), (*LAKES, BACTERIAL AEROSOLS), BUBBLES, SURFACES, PHOTOGRAPHIC TECHNIQUES, METEOROLOGY, AIR POLLUTION (U)
IDENTIFIERS: *AIR WATER INTERACTIONS (U)

PHOTOGRAPHIC STUDIES OF SMALL BUBBLES BURSTING AT THE SURFACE OF FRESH AND SEA WATER HAVE SHOWN THAT AEROSOLS ARE PRODUCED THROUGH THE BREAKUP OF MINUTE WATER JETS FORMED BY THE COLLAPSE OF THE BUBBLE CAVITIES. IT IS THE PURPOSE OF THE REPORT TO SHOW A FEW OF THESE PHOTOGRAPHS AS EVIDENCE OF THE NATURE OF THE BUBBLE-JET-DROPLET MECHANISM, AND TO SUGGEST THAT THIS MECHANISM MAY CAUSE BACTERIA TO BE EJECTED INTO THE ATMOSPHERE FROM NATURAL WATER SURFACES. THE INTEREST OF THE AUTHOR HAS CENTERED AROUND A STUDY OF THE METEOROLOGICAL ROLE OF BUBBLE-PRODUCED AEROSOLS. HOWEVER, STUDIES OF BURSTING BUBBLES AS SOURCES OF NATURAL AEROSOLS HAVE LEFT A STRONG IMPRESSION THAT THESE BUBBLES AND THE WEATHER CONDITIONS WHICH PRODUCE THEM MAY BE OF CONSIDERABLE SIGNIFICANCE IN BACTERIOLOGY. (AUTHOR) (U)

211

AD-737 500 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: SANITARY ENGINEERING AND INDUSTRIAL WASTE. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 63-MAY 71.
FEB 72 205P
REPT. NO. DDC-TAS-71-57-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*WATER POLLUTION, *BIBLIOGRAPHIES), (*SANITARY ENGINEERING, BIBLIOGRAPHIES), (*WASTES(INDUSTRIAL), BIBLIOGRAPHIES), SEWAGE, MUNITIONS INDUSTRY, SHIPS, METALS, CHEMICAL ANALYSIS, DISPOSAL, WASTES(SANITARY ENGINEERING), CLEANING, PUBLIC HEALTH, TOXICITY, WATER SUPPLIES, OCEANS, LAKES, AIR POLLUTIO(U)

THE ANNOTATED BIBLIOGRAPHY IS A COMPILATION OF REFERENCES TO REPORTS PROCESSED INTO THE DOCUMENT COLLECTION OF THE DEFENSE DOCUMENTATION CENTER FROM JANUARY 1963 THROUGH SEPTEMBER 1971. THESE CITATIONS COVER THE SUBJECTS OF SANITARY ENGINEERING AND INDUSTRIAL WASTES. INCLUDED ARE REFERENCES TO REPORTS ON POLLUTION OF OCEANS, RIVERS AND ESTUARIES BY THE DISPOSAL OF GARBAGE, SEWAGE AND WASTE. IN ADDITION TO AFOREMENTIONED REFERENCES: CITATIONS OF VARIOUS METHODS OF RECLAMATION AND TREATMENT OF WASTE ARE PRESENTED FROM LIFE SUPPORT AND CLOSED ECOLOGICAL SYSTEMS WHICH MAY PROVE BENEFICIAL TO ONGOING RESEARCH AND OPERATIONS FOR CONTROLLING ENVIRONMENTAL POLLUTION. CORPORATE AUTHOUR-MONITORING AGENCY, SUBJECT, TITLE, PERSONAL AUTHOR, CONTRACT, AND REPORT NUMBER INDEXES ARE INCLUDED. (AUTHOR) (U)

"A Simplified Method for Calculating Ground Contamination Densities From Aerial Spray of Nonvolatile Liquids," Monoghan, J., McPherson, W. R., Defense Research Establishment, Suffield, Ralston (Alberta), DRES-TN-314, March 1972.

"Environmental Aspects of Cooling Tower Operation, Survey of the Emission, Transport, and Deposition of Drift from the K-31 and K-33 Cooling Towers at ORGDP," Jallouk, P. A., Oak Ridge Gaseous Diffusion Plant, Tennessee, OPGDP-K-1859, February 1974.

"Use of Evaporation for the Treatment of Liquids in the Nuclear Industry," Godbee, H. W., Oak Ridge National Laboratory, Tennessee, Godbee, H. W., ORNL-4790, September 1973.

Wastewater Management By Disposal on the Land, S. Reed, P. Murrmann, F. Koutz, W. Rickard, P. Hunt, T. Buzzell, K. Carey, M. Bilello, S. Buda, K. Guter, C. Sorber, U. S. Army, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Special Report 171, May 1972

WATER-AIR POLLUTION

BY Specific Pollutant

AD-696 017 13/2
SCRIPPS INSTITUTION OF OCEANOGRAPHY LA JOLLA CALIF

LEAD AEROSOLS IN MARINE ATMOSPHERE. (U)

69 6P CHOW,T. J. (EARL,JOHN L.
(HENNETT,CARRIE F.)
CONTRACT: N000(9-69-A-0200

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY, V3 N8 P737-740 AUG 69.

DESCRIPTORS: (*AIR POLLUTION, OCEANS); (*OCEANS, ATMOSPHERES); (*ATMOSPHERES, SAMPLING); LEAD COMPOUNDS, SHIPBOARD, ISOTOPE SEPARATION, CONTAMINATION, CONCENTRATION(CHEMISTRY), OCEANOGRAPHIC SHIPS, PACIFIC OCEAN (U)
IDENTIFIERS: ARGO VESSEL (U)

244

PROCEDURES FOR THE SHIPBOARD SAMPLING OF MARINE AIR AND THE ANALYSIS OF ITS LEAD CONTENT BY THE ISOTOPE DILUTION METHOD ARE DISCUSSED. MARINE AIR COLLECTED OVER THE NORTH AND CENTRAL PACIFIC OCEAN BETWEEN CALIFORNIA, MIDWAY ISLAND, AND AMERICAN SAMOA SHOWED A LEAD CONCENTRATION RANGE FROM 0.0003 TO 0.0015 MICROGRAM PER CU METER. THIS LEAD CONCENTRATION RANGE SHOWS THAT MARINE AIR IS THE LEAST POLLUTED OF NORTH TEMPERATE ATMOSPHERES. (AUTHOR) (U)

AD-666 859 7/9 4/1 8/9 8/10
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF CHEMISTRY

TRACE METALS, EQUILIBRIUM AND KINETICS OF TRACE METAL COMPLEXES IN NATURAL MEDIA. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS,
JAN 68 271P HATSON,WAYNE REINER
CONTRACT: NONR-1841(79)
PROJ: DSR-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (*MICROANALYSIS, INSTRUMENTATION), (*COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY, ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM, REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD(METAL), COPPER, BISMUTH, THESES (U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF METAL IONS WAS BUILT USING THE CMGE. ANODIC STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED FOR OBTAINING INFORMATION ON THE COMPLICATED DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN, PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT, AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION CONSTANT K, AND THE RATE CONSTANTS KF AND KB FOR NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE METALS AND SEVERAL OTHERS - FE, MG, CO, NI, U. A PORTION OF THE TRACE METALS ATMOSPHERIC SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A UBIQUITOUS NONLABILE TRACE METAL COMPONENT WAS IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE STUDIED BRIEFLY. A COMPLICATED DISTRIBUTION OF STRONG LABILE COMPLEXES WHICH IS APPARENTLY ASSOCIATED WITH BIOLOGICAL ACTIVITY WAS ALSO IDENTIFIED IN MANY WATERS. (U)

"Phase II of Phossy Water Aeration Spray Testing at Pine Bluff Arsenal," Brooks, Alan E., Edgewood Arsenal, Maryland, Report No. EA-TR-4707, March 1973.

Synopsis: The White Phosphorus-Filling Facility, Pine Bluff Arsenal (PBA), Pine Bluff, Arkansas discharges a liquid effluent contaminated with elemental phosphorus and phosphates, as a possible pollution-abatement method, a program of aeration spraying in an open field was proposed to oxidize elemental phosphorus to phosphates and then have the phosphates absorbed by the soil. The purpose of Phase II was to study the long-range effects of phossy water aeration spraying over a 1-year period on a pilot scale. The test apparatus consisted of a crushed-limestone trickle filter and four irrigation spray nozzles. Water samples were analyzed for elemental phosphorus and phosphates; soil samples were analyzed for phosphorus, PH, potassium and sodium (used in PH control of phossy water).

"New Method of Controlling Radioactivity in Laboratory Waste Water," Eno, Eugene, University of California, Lawrence Berkeley Laboratory, Berkeley, California Univ-LBL-998, April 1972.

"Ottofuel II: Evaporation Into Air and Diffusion Into Sea Water," Cox, Walter G., et al, Naval Underwater Systems Center, Newport, Rhode Island, Report No. NUSC-TR-4420, June 1973.

Synopsis: The evaporation rate of Ottofuel II at 25-27 C was determined by weight loss measurements in a nitrogen atmosphere using a new technique based on differential pulse polarography.

(12) 245 p.

(18) (19)

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA-600/2-76-068b	2.
3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE (6) Defense Technology for Environmental Protection. Volume II. Bibliography.	5. REPORT DATE (11) March 1976
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) (10) Eldon A. Byrd, O. M. Meredith, Sherman Gee	8. PERFORMING ORGANIZATION REPORT NO. (14) NSWC/WOL/TR-75-111-Vol-2
9. PERFORMING ORGANIZATION NAME AND ADDRESS (9) U.S. Naval Surface Weapons Center White Oak Silver Spring, Maryland 20910 Final rept. Sep 73 - Jun 75,	10. PROGRAM ELEMENT NO. 1AB012; ROAP 21ADM-018
	11. CONTRACT/GRANT NO. IAG-133-D
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711	13. TYPE OF REPORT AND PERIOD COVERED Final; 9/73-6/75
	14. SPONSORING AGENCY CODE EPA-ORD

15. SUPPLEMENTARY NOTES Project officer for this report is James H. Abbott, Mail Drop 61, Ext 2925.

16. ABSTRACT The report condenses an effort designed to identify and transfer significant technology concerned with air pollution monitoring and control from the Department of Defense (DOD) to the EPA. Included are technology profiles of each DOD laboratory involved in particular work of interest to EPA's Industrial Environmental Research Laboratory-RTP, a bibliography of pertinent DOD documentation, and a description and assessment of how the study was conducted.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air Pollution	Air Pollution Control	13B
Military Research	Defense Technology	14A
Monitors	Department of Defense	14B
Assessments	Technology Transfer	

18. DISTRIBUTION STATEMENT Unlimited	19. SECURITY CLASS (This Report) Unclassified	21. NO. OF PAGES 245
	20. SECURITY CLASS (This page) Unclassified	22. PRICE

EPA Form 2220-1 (9-73)

391 596